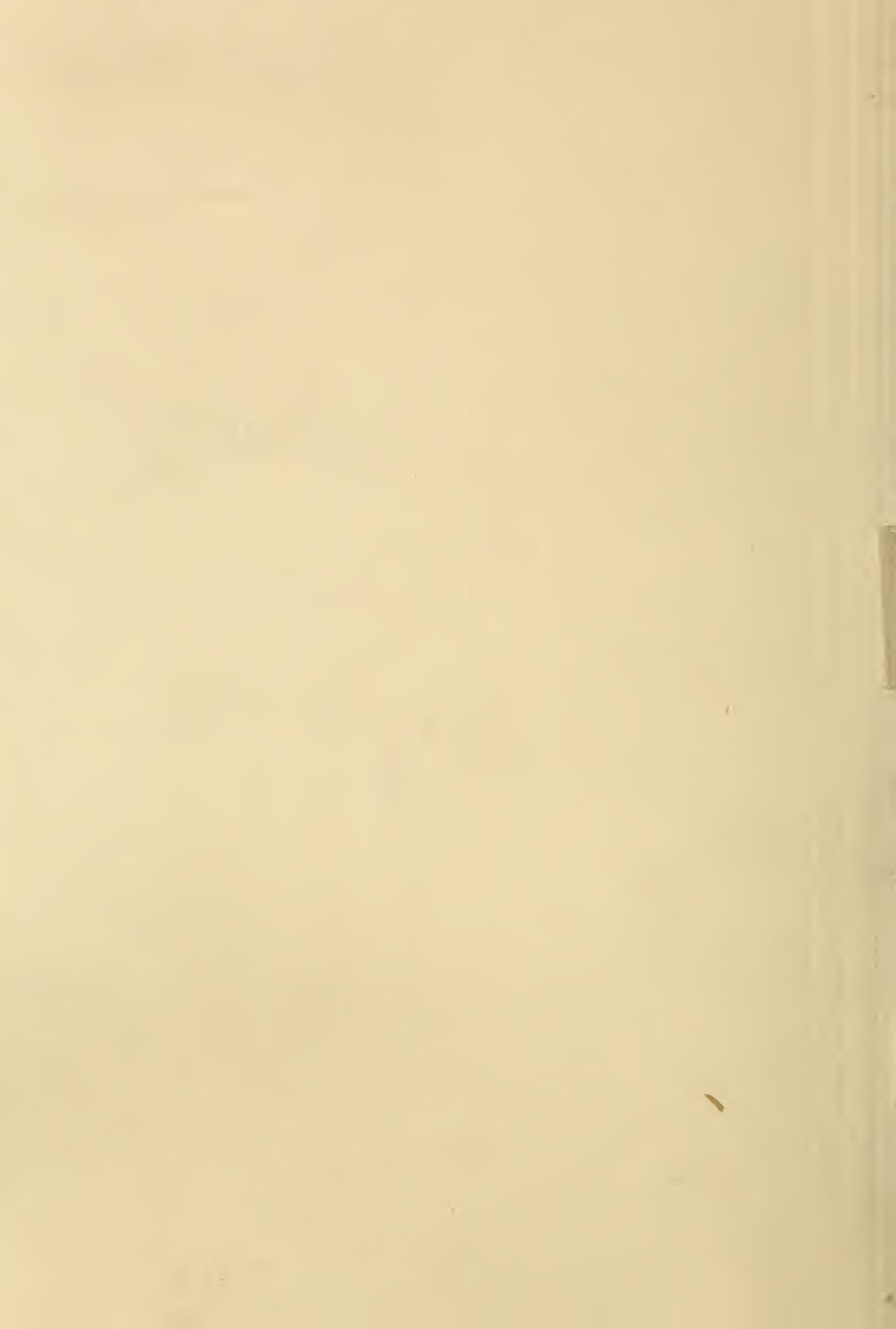


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VOL. XIV. NO. 10.

MAY 15, 1886.

PEACE ON EARTH
GOOD WILL TOWARDS MEN



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CLEANING
IN

BEE CULTURE

DEVOTED
TO

THE
BEE

& HOME INTERESTS.

MEDINA, OHIO

BY

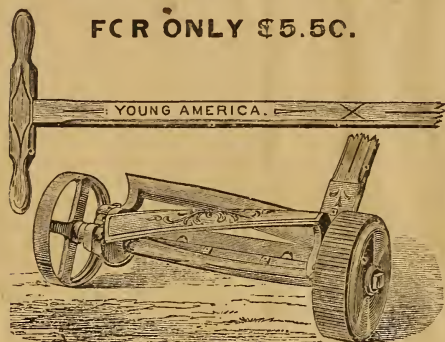
AL ROOT

TERMS, ONE DOLLAR PER YEAR.

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND CLASS MATTER.

A LAWN MOWER

FOR ONLY \$5.50.



Isn't it true, that a neatly kept lawn is evidence of an intelligent and progressive spirit possessed by the owner? A lazy and shiftless man seldom has any lawn at all. Many whose occupation keeps them indoors a great part of the day, derive health and enjoyment in taking care of a lawn, even though it be just a little one. And what makes life pleasanter than to see pleasant homes as we happen to pass along our country roads or village streets? Where you see a handsome lawn outside, you will almost always find the magazines and progressive journals of the day inside. One impediment in the way of these handsome lawns is the expense of a lawn-mower; and as we have spent some time in looking the matter up, and trying the different kinds, especially those adapted to mowing around bee-hives, I herewith give the result of it.

The one pictured seems to please us best of all for working in the apiary; and another thing that pleases me is that it costs for the 10 inch, only \$5.50; 12 inch, the standard size, \$6.00, and the 14 inch, \$6.50. The 10-inch one runs a little easier, of course, and it may therefore be preferable for a lady or for a child. Its simplicity is an advantage in the apiary, for it will run up close to the entrances, and it will cut weeds and grass of a considerable height without difficulty. We can furnish them promptly at the prices named. As the machine weighs but 50 lbs., it will probably go cheaper by freight.

A. I. ROOT, Medina, O.

The ABC of POTATO CULTURE.

HOW TO GROW THEM IN THE LARGEST QUANTITY, AND OF THE FINEST QUALITY, WITH THE LEAST EXPENDITURE OF TIME AND LABOR.

Carefully Considering all the Latest Improvements in this Branch of Agriculture up to the Present Date.

ILLUSTRATED BY TWENTY ENGRAVINGS.

Written by T. B. TERRY, of Hudson, O.

Table of Contents: Soils, and their Preparation.—Manures, and their Application.—When, and How Far Apart Shall we Plant?—Shall we Plant Deep or Shallow?—Shall we Plant in Hills or Drills?—How to Make the Drills, and Fill Them.—Selection and Care of Seed.—Cutting Seed to One Eye.—Planting Potatoes by Machinery.—Harrowing after Planting.—Cultivating and Hoeing.—Handling the Bugs.—The Use of Bushel Boxes.—A Top Box for the Wagon.—Digging.—Storing.—What Varieties shall we Raise?—Potato-growing as a Specialty.—Best Rotation where Potatoes are made a Special Crop.—Cost of Production, and Profits.

PRICE 35 CTS.; BY MAIL, 38 CTS.

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THE A B C OF BEE CULTURE.

27TH THOUSAND NOW READY.

AVERAGE SALE, 200 PER MONTH.

In ordering please state distinctly whether you want cloth or paper binding.

Single copies, cloth bound, postpaid by mail, \$1.25; same as above, only paper covers, \$1.00. From the above prices there can be no deviation to any one; but each purchaser, after he has paid full retail price for one book, may order the cloth-bound to any of his friends on payment of \$1.00, or the paper cover at 75 cents each. This discount we give to pay you for showing the book, explaining its worth, etc. If you order them by express or freight, you may take off 15 cts. from each cloth-bound book, or 12 cts. for each one in paper covers. Of course, it will not pay to do this unless you order a number at a time, or order them with other goods. To those who advertise A B C books in their price lists and circulars, a discount of 40 per cent from retail prices will be made, and this discount will be given to all booksellers and newsdealers. To any one who purchases 100 at one time, a still further discount will be made, to be given on application, and the 100 may be made up of part cloth and part paper, if desired. Purchasers are requested not to sell single books at less than the regular retail prices, although they may sell two or more at any price they think proper; or the A B C may be clubbed with any other book or periodical, at such prices as the agent thinks proper.

Cook's Manual in cloth at the same price as above.

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THE A B C OF CARP CULTURE

JUST ISSUED.

A COMPLETE TREATISE Upon the Food Carp and its Culture,

INCLUDING PLANS AND SPECIFICATIONS, AND FULL-EST INSTRUCTIONS FOR THE CONSTRUCTION OF PONDS, AND EVERY THING PERTAINING TO THE BUSINESS OF RAISING CARP FOR FOOD.

By MILTON P. PEIRCE,

Secretary of the American Carp Cultural Association.

Illustrated by Many Fine Engravings,

With a Copious Index.

PRICE 35 CTS.; BY MAIL, 40 CTS.

A. I. ROOT, MEDINA, OHIO.

SLUG SHOT.

We have used this during the past season, and find it a complete remedy for cabbage-worms. It is also recommended particularly for potato beetles, and every other kind of worm or insect. It is also a fertilizer for the ground, but is so harmless that you can use it for toothpowder, if you choose. Besides, it is very cheap. One pound, 6c; 5 lbs., 25c; 10 lbs., 45c; per barrel of about 225 lbs., 3½c per lb.

A. I. ROOT, Medina, Ohio.

PURE BONE MEAL.

Coarsely ground, expressly for poultry. Per lb., 5 cts.; 5 lbs., 4 cts. per lb.; 10 lbs., 3½ cts. per lb.; 100 lbs., 3 cts. per lb. Fowls will eat this almost as greedily as corn; and it not only furnishes material for egg shell, but it gives them considerable animal matter besides. Excellent for laying hens. It is sure cure for thin-shell eggs.

Bone meal ground fine, for gardening purposes, same price as the above.

A. I. ROOT, Medina, O.

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STANLEY'S AUTOMATIC HONEY-EXTRACTOR.

The only self-reversing Honey-Extractor known. Will do double the amount of work of any other extractor. Send for new circular, just out April 1st. Californians, send to Baker & Barnard, San Buenaventura, Ventura Co., Cal. Canadians, send to E. L. Gould & Co., Brantford, Ont., Can.

All others, address **G. W. STANLEY,**
 stddb Wyoming, N. Y.

Californians.—Good live men to act as sub-agents in the different counties of Cal. Parties wishing to become agents, or to manufacture the Automatic extractor can address **Baker & Barnard, San Buenaventura, Cal.,** or **G. W. Stanley, Wyoming, N. Y.** This is a good chance for those who want to make and sell our machines.

STANLEY'S DOLLAR SMOKER.

A large strong bellows Smoker, with 3-in. barrel, and equal to any smoker in the market. for only \$1.00, or \$1.25 by mail. Can be sent immediately.

SPECIAL OFFER UNTIL MAY 25TH.

Every person who purchases a 4-frame Automatic Honey-Extractor before May 25th, and sends cash with order, will receive a smoker *free*.

SECTIONS

quote you rock-bottom prices. Circular free. Stfdb

PURE * ITALIANS * EXCLUSIVELY.

✻ STOP, ✻ READ, ✻ AND ✻ ORDER. ✻

Having determined to devote my time and attention exclusively to the production of pure Italian bees and queens, during the season of 1886, I offer, in order to reduce stock, **50 Choice Colonies of Pure Italians** in 10 Langstroth frames, guaranteed to contain at least 4 full frames of brood and 4 lbs. of bees in new chaff hive, at \$10.00 each. I append my prices for the season.

My terms are cash with the order. First orders will be filled first. I will refund money at any time a customer may become dissatisfied with waiting.

My methods: One kind, and the best of that kind. Nothing except tested queens sold at any price. I will send one-year-old queens until stock is exhausted, and then this season's hatch. I will commence to send, about May 1st.

1 tested queen.....	\$1 00
1 pound of bees	1 00
1 frame of brood and bees.....	1 00

1-frame nucleus, tested queen	\$2 00
2 " " " "	3 00
3 " " " "	4 00
4 " " " "	5 00

In lots of 5, five per cent discount; in lots of 10, ten per cent discount. In lots of 10 or more nuclei or pounds of bees, I will pay express charges for the first 1000 miles. Now remember, I guarantee safe arrival and absolute satisfaction in all cases. Sample of live workers free by mail. Capacity, 25 queens per day after May 1st.

6tfdb

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens, which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is often times quite an accommodation to those who can not afford higher-priced ones.

I have about one dozen hybrid queens for sale at 25c each. Good and prolific. M. BROERS, Gonzales, Gonzales Co., Texas.

Ark. Brown and hybrid queens 20 to 40 cts. each.
F. C. MORROW, Wallaceburg, Ark.

Black queens, 25c until June.

WALTER B. FISHER, Uvalde, Uvalde Co., Texas.

Hybrid queens at 40 cts from May 20th.

J. G. COBB, Mount Cobb, Pa.

75 black and a few hybrid queens left for sale, at 25 and 35c each. All clipped. Safe arrival guaranteed by return mail. L. T. AYERS,
Box 175, Kankakee, Kankakee Co., Ill.

I have some 10 or 12 black and hybrid queens to sell, after the 18th inst., at 25 and 35c each.

J. C. ZIMMERMAN, Wabash, Wabash Co., Ind.

Black and hybrid queens for sale at the usual rates. GEO. D. RAUDENBUSH, Reading, Pa. 10d

Hybrid queens must go. In order to rid my apiaries of the last vestige of black blood, I offer 6 good hybrid queens (all that I have) at 40 cts. each, or \$2.00 for the lot. Speak quick, for I will kill them if not called for soon. Address
J. C. BOWMAN, North Lima, Mahoning Co., Ohio.

**F. HOLTKE'S 3-FRAME NUCLEI, WITH
\$1.00 QUEEN, FOR ONLY \$2.00!**

Threc-frame nuclei, with \$1.00 queen, from 15th of May on, \$2.00. Combs built in Simplicity frames, and well stocked with bees and brood. 10-11-13d
Fred'k Holtke, Carlstadt, Bergen Co., N. J.

Batchelder's Drone and Queen Trap

Is the only one made that does not hinder the bees in their work. Send 85 cents for sample. Send for circular, and see what A. I. Root says about it.
10trdb **J. A. BATCHELDER, Keene, N. H.**

AT HARD-PAN PRICES. V-groove or square cut. Samples free; also chaff hives, Root's pattern; Dunham comb-foundation and apiarian supplies of all kinds. Write, stating what you want, and I will fdb **EZRA BAER, Dixon, Lee Co., Illinois.**

THOMAS HORN.

BOX 691, SHERBURNE, CHENANGO CO., N. Y.

1000 Lbs. BEES FOR SALE.

Here I am for the spring of 1886, with 1000 LBS. OF HYBRID BEES for sale by the pound. Bees \$1.00, and queens 50 cts. in May; bees \$1.00 and queens 35 cts., after the 10th of June. All express charges paid by me in the United States and Canada. Safe arrival guaranteed. Orders received first will be filled first. Remember, I can not fill all in one day. Order early, and avoid delay. No order will be booked without the money. Money returned when required. I have no circular. Inclose stamp when you want a reply. I will start to ship on the 15th of May, weather permitting.

THOMAS GEDYE,
La Salle, La Salle Co., Ill.

BEAUTIFUL FOUNDATION

And very choice all-in-one-piece SECTIONS, V-groove—wholesale and retail, and exceedingly cheap. Send for Samples and Free Price List of every thing needed in the apiary. 9tfdb
(Near Detroit.) M. H. EUNT, Bell Branch, Wayne Co., Mich.

WESTERN ILLINOIS MODEL POULTRY & BEE YARDS. Premium and imported stock; also Apiarian supplies. Catalogue free. 8-12d L. HORNING, Prop., Maitland, Ill.

BEE-KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, 48 pages; FREE to all bee-keepers sending address to
JOS. NYSEWANDER, Des Moines, Iowa.

BE SURE

To send a postal card for our illustrated catalogue of APIARIAN SUPPLIES Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2 tfd Hartford, Washington Co., Wis.

MY 18TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
10-11tfdb H. H. BROWN, Light Street, Col. Co., Pa.

Italian Queens sent by Mail.

Untested queens from imported mother, April, \$1.25; May, June, and July, \$1.00. After April, per half-dozen, \$5.00. E. CRUDGINGTON & SON,
6tfdb Breckinridge, Stephens Co., Texas.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db Box 172. Fresno City, Cal.

Foundation-Mill For Sale.

One nine-inch Dunham mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price \$20.00. The list price of a new mill of this kind is \$40.00.
A. I. ROOT, Medina, O.

HEADQUARTERS IN THE SOUTH FOR THE MANUFACTURE AND SALE OF BEE - KEEPERS' SUPPLIES.

The only Steam Factory Erected in the South, Exclusively for the Manufacture of Hives, Frames, Sections, etc. The Viallon and Root Simplicity Hives a Specialty.

ITALIAN QUEENS;

Untested, in April, \$1.25 each; \$13.00 per doz. From May 5 to June 1, \$1.10 each, \$12.00 per doz. After June 1, \$1.00 each, \$10.00 per doz. Tested, \$2.50 each; select tested, \$3.00 each to first of June. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

With pure Italian queen, containing 3 pounds of bees when received; in April, \$4.00; after May 25, 25 cts. less. Safe arrival and satisfaction guaranteed.

BEES BY THE POUND,

Delivered, express prepaid, in lots of 5 pounds or more. Send for price. Same discount given as offered by A. I. Root, in GLEANINGS from month to month. For more particulars, send for catalogue for 1886.

P. L. VIALLON.
7tfdb Bayou Goula, Iberville Parish, La.

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb G. B. LEWIS & CO.,
Watertown, Wis.

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

VIRGINIA LAND AGENCY.
Cheap Farms. Splendid climate. Short Mild Winters. Good Markets. Descriptive Land List Free.
6-11b GRIFFIN & JERVIS, PETERSBURGH, VA.

BEES IN IOWA. —SEE FOSTER'S—
ADVERTISEMEMENT.

HORN PAYS EXPRESS CHARGES
SEE ADVERTISEMEMENT.

ITALIAN QUEENS, untested, May and June, \$1.00; six for \$5.00; after July 1st, 85c each; six, \$4.50; 2-fr. nucleus, untested queen, June, \$2.75; after July 1, \$2.25. Send for price list of bees by the pound, fdn., etc. JOHN NEBEL & SON, High Hill, Mo.
7-12db

SUPPLIES!
HIVES, SECTIONS, CASES, CRATES, ETC.
COMB FOUNDATION, ITALIAN BEES
AND QUEENS, BRED FOR HONEY-GATHERING.

Wax wanted. Send for free Catalogue to
6tfdb REYNOLDS BROS., WILLIAMSBURG, WAYNE CO., IND.

SYRIAN AND ITALIAN QUEENS,
Before June 15, tested, \$2.50 each; after, \$2.00 each. Untested, before June 15, \$1.00 each; after, single queen, \$1.00; six for \$5.00; twelve for \$9.00.
6tfdb ISRAEL GOOD, Sparta, Tenn.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—Honey.—Demand for all grades light, with a very light stock of comb in the city. Extracted dull and very low. With the low freights from California, our trade has been well supplied. One-pound sections, choice, 16
" " " dark, 12@14
Two " " choice, 12@14
" " " dark, 9@10
Extracted, from 3½ to 6 cents. Beeswax, 23c.
May 11, 1886. CLEMONS, CLOON & Co.,
Cor. 4th & Walnut St's., Kansas City, Mo.

CHICAGO.—Honey.—The supply of comb honey is fully up to demand, unless it is for fancy one-pound sections (without glass), which brings 15@16c. Two-pound sections, 10@12c, slow of sale. The demand for extracted is very light, at unchanged prices. Beeswax, in larger supply at 23c. R. A. BURNETT.
May 10, 1886. 161 S. Water St., Chicago, Ill.

CINCINNATI.—Honey.—There is no new feature in the market. Demand fair for extracted honey for table use, but exceedingly dull from manufacturers. Prices are unchanged and nominal. Prices of comb honey are nominal, and but little on the market. We sell at 14@15c a lb. for choice, in the jobbing way. Beeswax.—There is a good home demand. Good to choice yellow brings 20@22c. on arrival.
May 11, 1886. C. F. MERT & SON,
S. E. Cor. Freeman and Central Avenues,
Cincinnati, Ohio.

ST. LOUIS.—Honey.—We have no features to note in our honey market, except dullness. Demand is very light, prices notably unchanged—any way, not improved.
W. T. ANDERSON & Co.,
May 11, 1886. 104 N. 3d. St., St. Louis, Mo.

MILWAUKEE.—Honey.—Market here seems quite dull; the demand is very limited, and the supply not very large. Values continue unchanged.
Choice white 1-lb. sections, 17@18
" " 2-lb. " 16@17
" dark 2-lb. " 15@16
Extracted, in kegs or tin, white, 8@8½
" " dark, 6@7
Beeswax, 25c. A. V. BISHOP,
May 11, 1886. 142 W. Water St., Milwaukee, Wis.

DETROIT.—Honey.—There is no honey left in commission houses, and but little in the hands of retail dealers. New honey will find the market bare. Best comb. in 1-lb. boxes, 14c. Beeswax, scarce @25c.
M. H. HUNT,
May 11, 1886. Bell Branch, Mich.

CLEVELAND.—Honey.—Our market continues good for best 1-lb. unglazed sections, which bring 14@15 cts. readily on arrival. 2-lbs. are dull at 12@13 cts. Glazed sections sell slowly at 12c. Extracted, 7@8. Beeswax, scarce at 25@28.
A. C. KENDEL,
May 8, 1886. 115 Ontario St., Cleveland, Ohio.

BOSTON.—Honey.—No change in price of honey. Sales very light.
BLAKE & RIPLEY,
May 11, 1886. 57 Chatham St., Boston, Mass.

HONEY - JARS.

Buckets and Tumblers of Crystal Glass

CORKS, TIN-FOIL CAPS, ETC.

Best Quality, at Lowest Prices.

Address for Prices, etc., TYCARD SONS,
104 2119 S. Jane St., Pittsburg, Pa.

QUEENS.

I have them, bred from a best selected queen of Root's importation, 90 cts. each; 6 for \$4.50. I can give all orders immediate attention, and ship by return mail. Send postal for dozen rates.
10tfdb B. T. BLEASDALE,
596 Woodland Ave., Cleveland, Ohio.

HILL-SIDE APIARY.

ITALIAN BEES AND QUEENS, BEES BY THE POUND, NUCLEUS, OR FULL COLONY.

Send for Circular to

W. B. COCCESHALL, Supt.,
Summit, Union Co., N. J.

For Sale. A bargain for some one. 320 acres of land in Reynolds Co., Mo., only 12 or 15 miles from Iron Mountain R. R. Well covered with pine timber, never having had a tree cut on it. Taxes less than \$5.00 per year. Will sell for \$10.00 per acre. 10d J. S. WARNER, MEDINA, O.

Stanley's AUTOMATIC HONEY-EXTRACTOR AND DOLLAR SMOKER.

Special Offer. See Advertisement in another column.

FOUNDATION, 6 SHEETS FOR L. FRAME. 35c. PER LB. W. T. LYONS, Decherd, Tenn.



LOW COST HOUSES

HOW TO BUILD THEM

A large Atlas, giving cuts and full descriptions of 40 desirable modern houses, costing from \$400 up to \$6,000. Profusely illustrating every detail and many original ideas. Houses adapted to all climates described. The latest, best, and only cheap work published. Sent by mail, postpaid for 50c. in stamps. FRANKLIN NEWS CO., PHILADELPHIA

EXPRESS PREPAID upon EGGS FOR HATCHING from our premium stock of Fowls. Send for price list. Satisfaction guaranteed. Ref. A. I. Root. 9d BOSTWICK & ASHLEY, Medina, Ohio.
P.S.—4 in. German Carp, \$5.00 per 100, F. O. B. here.

CONVENTION NOTICES.

The Madison County (N. Y.) Bee-Keepers' Association will hold a semi-annual meeting in the parlors of the Eagle Hotel at Oneida, N. Y., on Wednesday, May 26. The meeting will be called at 10 o'clock A. M., sharp. All interested in bees or honey are invited to attend. All apicultural goods sent for exhibition will be carefully looked after by the officers of the association. F. S. SMITH, Pres.

The date for the next meeting of the N. A. B. A. has been fixed for the 12, 13, and 14 of October next. Indianapolis, Ind. F. L. DOUGHERTY, Sec.

CIRCULARS RECEIVED.

The following have sent us their price lists:
J. B. Batchelder, Keene, N. H., an advertising sheet of the Batchelder drone-trap.
J. J. Hulbert, Lyndon, Ill., a 14-page circular of bee-supplies in general.
Thos. L. Thornton, Dividing Ridge, Ky., a 6-page price list of apianarian supplies.
J. R. Landes, Albion, Ohio, a 4-page circular—specialty, bees, queens, and poultry.
Will Ellis, St. Davids, Ont., Can., apianarian implements and a specialty of fine comb fdn. Will Ellis has obtained the first prize on foundation at the London Western Fair, and first and second prize on foundation at the Toronto Industrial Exhibition. This fdn. was made from one of our make of mills, and the friends will do well to bear this in mind when in need of a comb-mill.

I am being asked my opinion of the new circulars Mrs. Cotton is again sending out quite plentifully. The statements she makes, and the prices she charges for the goods she sends out, would, in my opinion, forbid her being classed with our regular supply-dealers, to say nothing of the strings of complaints against her that have filled our bee-journals for years past.

REDUCTION IN THE PRICE OF BEES AND QUEENS FOR THE MONTH OF JUNE.

Just before going to press.—The season is so extremely favorable for the production of bees and queens that we have decided, besides the offer mentioned on page 426, to make the prices of bees and queens, after the first of June, at July prices.



Vol. XIV.

MAY 15, 1886.

No. 10.

TERMS: \$1.00 PER ANNUM, IN ADVANCE;
2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00;
10 or more, 75 cts. each. Single Number,
5 cts. Additions to clubs may be made
at club rates. Above are all to be sent
TO ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS
than 90 cts. each. Sent postpaid, in the
U. S. and Canada. To all other coun-
tries of the Universal Postal Union, 18c
per year extra. To all countries NOT of
the U. P. U., 42c per year extra.

JAMES HEDDON ON THAT WINTER- ING PROBLEM.

EXPERIMENTS IN FAVOR OF SUGAR STORES.

IT will be remembered that I have all along declared that the prime cause of our great winter enemy, bee-diarrhea, was concealed in their food. Well, through the persuasion of Mr. Barber and other successful bee-keepers I had almost made up my mind that possibly I was not altogether right about the matter, and that temperature was about all we need to look to; at least, I hoped that this easy solution of the difficulty might prove true. Last fall I prepared for extensive tests regarding the matter, and now I will state facts relative to my experiments during the past two winters, and let the reader draw his own conclusions to suit his reason and understanding.

Perhaps the reader will remember, that in the fall of 1884 I placed in a damp cellar 91 colonies, 73 of which had no natural stores of any sort (not a cell of bee-bread), they having clear sugar syrup fed into clean dry combs, while the other 18 had a part all natural stores, and a part a mixture of natural and artificial. The cellar was very damp—so much so that mold and pools of water could be seen about nearly every hive. About one-third of the colonies had upward ventilation; the others, only entrance ventilation. The cellar was allowed to become very cold. For weeks the temperature stood as low as 20°. Nearly every one of the 18 colonies on natural stores had bee-diarrhea, and the 73 on pure syrup came out, after a confinement of 151 days, without any fecal accumulations whatever. When they had their first flight, not a thing—not even water—could be seen coming from them—not a spot on any of the white hives. Here was cold and humidity, but no fecal accumulations. From one of the sick colonies (dead with bee-diarrhea) I

took a sample of the excreta, and sent it to Prof. Cook for chemical analysis. I also inclosed some pollen from the comb contained in the frame from whose top bar I took the excreta. The professor answered as follows: "I have subjected the pollen to a very careful examination with a one-sixth objective. I find several kinds of pollen grains, two of which are by far the most common. One is oval, rather pointed at the ends, with a longitudinal slit and numerous projections; the other is globular, and thickly set with projections much like those in the other. I then studied the excreta; and had some one else made the change, I should have stoutly maintained that the objects were the same that I had just studied. The kinds of pollen were exactly the same in style and markings. The pollen you sent had been liberally appropriated by the bees whose excreta you sent."

Last fall I placed in a filled-wall, above-ground repository (room 11×7×18 feet) 150 colonies, with stores part natural, and part syrup. This house was kept at a temperature between 45 and 50°, and no signs of the disease appeared till late in winter, and, when taken out, no less than 25 to 30 colonies had diarrhea to a greater, or lesser extent. For over three weeks, at one time, I maintained the temperature by closing the room as tightly as good carpenter-work and packing could make it; and during all this dearth of "fresh air," the bees remained quiet and in apparently perfect health. Here at home I placed 300 colonies in two cellars, one damp and the other very dry, the same as at Glenwood. We endeavored to keep up the temperature by tightly closing the rooms in the coldest weather, and we did so with the new cellar; but with the old one we failed, as at the back end there was a hole between the old boards that we overlooked, and never should have found, but that we caught it melting holes through the snow on the

outside. Nevertheless, the temperature of both cellars never went below 45° nor above about 50°, and all was quiet, and no odor of diarrhea till near spring, and then the disease began to appear, and was rather worse in each cellar than at Glenwood, in the house.

Most of the colonies here were trusted to natural and part natural stores and high temperature; and none, except the few upon *all* artificial stores, came through without *any* fecal accumulations. It has well been said, that with honey at the present low price and slow sale, the purchase of 20 or 30 barrels of sugar, when 20,000 lbs. of the nicest honey is on hand, is almost impracticable, and this is the reason that I trusted most of my colonies to all or part natural stores. I must say that I am disappointed to find that, under no conditions, are we at all times sure of wintering one-half of our colonies with natural stores. It may be that in many localities this can always be done, but I can't do it here. This much is solved: I can winter any colony with certainty; but to do so I must not only keep up a 45 to 50° temperature, but see that their only food is pure cane-sugar syrup properly prepared and fed. My last winter's experiments fail to attach any importance to ventilation and humidity.

I had two colonies on natural stores, thoroughly packed, outdoors, and one of them died with the diarrhea. I did not expect this, but find the pollen theory too true in my locality. I did not hope to bring my bees through in *perfect* condition on natural stores, but I hoped to bring all through in condition to make good working colonies by the time clover bloomed; but I must own, that in this I was mistaken. Friend Barber's plan won't do here. I have just sent two specimens of the diarrhetic excreta to Professor Cook, and here is his report:

"The thick feces is loaded with pollen of various kinds, and largely insoluble in water. It has also many spherical fungi. The other, also, has much pollen, but less. It also has the spherical bacteria, or fungi, and, in addition, some forms which are chain-like. This is more soluble than the other; but after boiling for some time in water there is quite a residue that is insoluble."

The above are the facts, and all may draw their own conclusions. It seems to me they pretty well refute the opinions of Dr. Joslin and Father Quinby, as recorded by Mr. Hutchinson, on pages 249 and 250.

JAMES HEDDON.

Dowagiac, Mich., May, 1886.

BEES CAPPING THEIR CELLS WITH COTTON BATTING.

DO BEES SEND OUT SCOUTS BEFORE SWARMING?

I HAVE some quilts made of sheeting and cotton batting. I noticed, a few days since, at the entrance of one hive some of the filling of one quilt, which had been carried out. I opened the hive, raised out the brood-combs, and found they had been using that cotton for capping some of their brood. Some of the young bees had nothing over their heads (and those that had no heads formed), but simply fine bits of cotton stretched across the cells in many ways, and I could look through the network covering and see the little fellows, like looking through a sieve. There was one patch about two inches square with no capping except cotton batting. You may say this was moth-

webs; but I say no, not the work of any thing but the bees capping their brood.

Last summer I was doing some carpenter work for a man about a mile from where I live, about the last days of June. As I had lost most of my bees the winter before, I took what work I could get, as the 20 weak colonies I had left did not require much time. One day my wife came to where I was at work and said my bees had swarmed. "Well," said I, "where did they go?"

"Why, they went into a hive," she said.

I said, "Do you know which hive they went into?"

"Yes," she replied, "I marked the hive with a stone."

"Well, do you know which hive they came out of?"

"No," she said; "I did not see them until they were all flying."

When I went home in the evening I found they had entered a hive with combs in which the bees had died the previous winter; and when I examined I found them to be hybrid Italians, very cross, and I did not have a hybrid in the yard. There were also more bees in that swarm than I had in any two of my hives. The next week I noticed a great many black bees flying around my empty hives, and at five o'clock in the evening a large swarm of black bees came and went into another of my hives. I saw them come.

10—MONT. WYRICK, 20—46.

Cascade, Ia., Apr. 23, 1883.

Something of this kind, about bees capping cells with fibrous material, has been brought up before, and I presume there is no question but that the bees do, under some circumstances, use fibrous material. The cappings of the brood-cells are not wax, in any case. The fact you furnish about stray swarms of bees occupying your hives is also valuable; it seems to me as if it might pay to have hives fixed just right, ready for such truant swarms.

HEATING WATER AT DIFFERENT DEPTHS IN A CAN.

THE FEASIBILITY OF BOILING EGGS FROM THE SURFACE OF THE WATER.

I HAVE been a reader of your paper for the last year, and find it very interesting and instructive. I noticed a sketch in March 15th issue, over the signature of Ernest R. Root, "Experiments with Wax-extractor," in which the boiling-point, 212°, is reached. He thinks that eggs boiled by the sun are quite probable. I think he will have to boil them very near the top. I was attending a farmers' meeting in our town some years since. The question came up concerning cooling milk from the bottom. Some thought it could be cooled to the depth of a foot or more; when Dr. Marquis, one of our townsmen, who, by the way, had been experimenting with a pan he invented, asked the club over to his store to see what he could do. His pan was sixteen inches deep, with three faucets—the first, four inches from the bottom; second, four inches from the first; third, four inches from the second. He first asked one of the gentlemen to try the water in the pan. He found it alike in all the faucets—the same temperature as the air in the room. He then attached his cooling apparatus (which is a hollow tube) to a force-pump in the cis-

tern, and lowered it to the bottom of the pan. His next move was to attach his heating apparatus to a steam-gauge, and lower it in the pan to the first faucet from the top, this likewise a hollow cylinder. He then stepped back in the store and got some eggs and laid a couple on the heating cylinder and dropped one to the bottom of the pan. He then told his servant to pump the water passing through the cylinder at the bottom, and back to the cistern. At the same time he turned on steam at the top, and in a very short time the water at the top was boiling rapidly. He kept both heat and cold going perhaps ten minutes, then he asked the gentleman to draw some water from the middle faucet and try it. It had not changed in temperature from where it was at on the start. He then raised his heating-cylinder and presented the ladies a couple of boiled eggs. He next tried to remove his cooler from the bottom, and found it frozen fast to the bottom of the pan. When he got it loose he brought up the egg, and at least one-half inch of blue ice. The egg was frozen open. He then reversed proceedings, putting the cooler at top, dropped some aniline on the cylinder, and commenced pumping; in a very short time the aniline was thoroughly mixed with the water. So I am afraid friend Root will find it up-hill business boiling eggs from the top.

NOYES B. PHETTEPLACE.

Norwich, N. Y., April 8, 1886.

Friend P., the matter you mention is a familiar one in chemistry, and one of the experiments often tried is to pour ether on the surface of water, and set fire to it. While the surface is more than boiling hot, a thermometer just beneath the surface shows no change of temperature, and ice may be in the bottom of the vessel without being melted at all. This very fact is made use of in hot-water arrangements for heating green-houses. The only way to warm a body of water is to heat it at the bottom and allow the circulation caused by the heat to warm the whole body evenly. If the water containing the eggs to be boiled were placed in a black iron pan, I think the rays of the sun would go down and heat the bottom of the pan enough to warm up the water considerably, but perhaps not enough to make it boil.

ARTIFICIAL PASTURAGE.

DR. C. C. MILLER TALKS TO US ABOUT IT.

THE subject of artificial pasturage is one in which I have been much interested. I have spent upon it some thought and considerable money. Some may think it premature to talk of planting for bees, when millions of acres are yet unoccupied; but the day may come when these shall cease to be unoccupied, and it is well to be prepared in advance for the possible. There are a good many who have so many bees that out-apiaries are established; and for such it would be a great advantage if additional pasturage could be furnished near home at sufficiently low cost to maintain all in the home apiary. Besides, whether many or few bees are kept, there come gaps in the season when there is almost nothing for the bees to do, and it might pay to be at considerable expense to provide artificial pasturage to fill up these gaps. But it must be borne in mind that no one has yet demonstrated, by actual trial, that one or more

acres of ground can be planted and occupied permanently by plants from which the honey alone shall pay a profit. Something may be done by scattering seeds on roadsides and waste places. I should like, however, to be able to plant a certain number of acres, and know with some degree of approximation how many colonies could be supported thereby, and know, also, that the honey obtained therefrom would more than pay all expenses. Although my attempts have been failures mostly, it may be of use to others to detail some of them that they may be avoided. One year I planted a quarter-acre of

SUNFLOWERS.

The ground was rich, they were well cultivated, and presented a fine sight when in full bloom; but I never saw any bees on them to amount to any thing. They were of the "Mammoth Russian" variety, and I think possibly the common kind might be better. The Russian produces a large quantity of seeds—perhaps, rather, a quantity of large seeds—but a bushel of common seeds, I should think, would contain about double the amount of meats that the Russian would, because the meat in the Russian seed bears no proportion to the size of the shell.

ALSIKE CLOVER.

Although a great success with some, has been otherwise with me. Sown on clay, several different years, it has generally failed to make a good catch, doing best, however, on low ground. Only one year did I have any success, and then I had an acre that was beautiful. Bees worked on it strong; but after one season of bloom it was gone, root and branch. Last summer there were some fine patches of alsike on ground that had never been sown. I can not think how it got there, unless from seed in manure put on two or three years previously. I have rather settled upon alsike as one of the things I can not succeed with, and yet it is quite possible that, in five years, I may have acres of it flourishing, by knowing just how to manage. I think enough has not been said about the beauty of the alsike blossom. I have never shown it to the lovers of flowers without calling forth warm admiration, and I think many would consider it worth cultivating for its beauty alone.

SPIDER PLANT.

From what little I have tried it, I consider worthless, although producing large quantities of honey, because I know of no way of raising it by the acre without heavy expense.

FLOWERING MAPLES.

Or abutilons, I have had for years. I have seen bees working on them, and have tasted from them the richest drops of nectar I ever tasted directly from any flower; the largest in quantity, also, before ever I saw any mention made of them as honey-plants; but I am rather surprised that time should be taken to talk of such plants as this, poinsettia, or other greenhouse plants. If the smallest slips of these plants were started, by the time they were rooted they could hardly be furnished for two cents each; but a plant just rooted, and planted out as early as our northern seasons will admit, would not be fairly in bloom before frost. Such plants as would be large enough to be of service would need to be much larger, and could hardly be afforded for less than ten cents each. But suppose they could be had for five cents each; and to keep down expense, let us plant them four feet apart each way;

that will require 2722 for an acre, or an outlay of \$136 per acre, to be renewed annually at the same expense, as every plant will be killed with the first frost. Is it worth while to talk about setting out such plants in quantity?

FRUIT-BLOSSOMS.

If I were not in a region where fruit is quite plentiful, I think I should certainly try to find what kinds would succeed, and plant of them pretty largely. I have succeeded in having honey stored in sections during apple and cherry bloom but once, and then only by a single extra-strong colony in a few sections. But their influence in urging brood-rearing is so great that Quinby, if I mistake not, said the fruit-bloom decided the season. As to the character of the honey, I have never observed closely enough to make a positive statement, but will rather put it in the form of a question: Is not honey from cherry and plum rather disagreeable, and from apple of fine flavor, resembling the odor of crab apple blossoms? If bees work much on strawberries, I have never been able to observe it; but on raspberries I have seen them work very busily. The only objection is, that they come partly in the time of clover-bloom. C. C. MILLER.

Marengo, Ill., May, 1886.

Friend M., over and over again I recur to this subject, and I do think it is one of the greatest importance. You say no one has yet demonstrated by actual trial that one or more acres of ground can be planted, from which the honey alone will be a profit. This may be so; but even if it is, why not develop the plants where honey alone is not the only source of profit? Bee-keepers should raise buckwheat; or if they can not do that, induce others near them to raise buckwheat, on the plan suggested by G. O. Goodhue, on page 327. Buckwheat, alsike clover, rape, and possibly raspberries, can be worked on this plan; and who knows but that we may, in a few years, raise basswood for the timber and for the honey? My basswood-orchard is getting to be a valuable piece of property, and I should not be surprised if the time would come when the timber would be worth all it cost, to say nothing of the honey. Unless we discover some plant that yields honey in much larger quantities than any thing at present known, it certainly will not pay to raise plants to set them out, as we should have to do with the abutilons and spider plants. I presume you know there is a new plant now under test. See page 391.

LETTER FROM TOUNGOO, BURMAH.

FRIEND BUNKER TELLS US OF THE CONFLICTS AND TRIALS OF THE CHRISTIANS AMONG THE IDOLATERS.

THE goods reached us in good order, with the exception of a few glass pails and tumblers broken. Taking into account that the goods traveled over 12,000 miles, and were shipped and re-shipped several times, this was not bad. The iron-jacket cans, a few of them, got a dash of salt water, and were marred by rust; but this was soon remedied by a dash of japan varnish. We were all very much pleased with the goods, especially Nellie and Ruthie, who soon found clover-heads and other treasures in the grass and straw. These

have all been carefully collected for sowing, in the hopes of raising some old home flowers. I had expected to have two Italian swarms of bees to begin with, when the hives ordered of you should arrive; but owing to bad packing, when they reached me both swarms were suffocated. The first swarms to reach Burmah, and suffocated at that! I am much disappointed, but hope for better success next time. I have applied to the government (agricultural office) here for aid to make further experiments in this direction as soon as this war is over.

You have heard through the papers of the annexation of Upper Burmah, and the deposition of King Theebaw, and perhaps you have thought, with many others, if you have thought of the matter at all, "How quickly this Burman Empire has been overthrown, and incorporated with Her Majesty's dominions!" But in fact, the work is far from being completed. We have about 25,000 Christians in Burmah; all the rest are gross idolaters, except, of course, Europeans. Now, the priests of these idolaters, "priests of Baal," have been preaching to their people that King Theebaw, being the head and protector of their religion, has been overcome by the English because of the *prayers* of the native Christians! What a grand admission of the majesty and power of the Christian's God! So these priests say, "Let us kill off all these Christians, and we shall win back our kingdom." As a consequence, these priests have become leaders of war parties, and are scattered all over Upper and Lower Burmah, burning, sacking, and killing all who will not join them. The government police are idolaters, and have joined the insurgents with their arms in many cases.

The Toungoo Mountains run north and south through Shwaygheen and Tavoy Districts, and have a large population of Christian Karens. Of these, 81 churches, or villages, or about 2500 baptized adults, with a large nominal Christian population, are under my care. A band of two thousand or more gathered in the Shwaygheen hills, and attacked the Karen Christian village, killing and burning, especially burning, chapels, and cutting up Bibles and other books. The government could not meet the case, and could supply only a limited number of arms. The people had no leaders but ourselves, their missionaries, so we have been obliged to lead our Christians to war as in the days of the Israelites of old. The Karens, though poorly armed, have met these idolaters, and have fought them, and the slaughter has been great. The native pastors continually quote the wars of the children of Israel as their guide, and woe to the man who seeks plunder. They bring all plunder to the government officers for disposal. Hundreds of these idolaters have been killed, and scores taken prisoners. The leader, a priest of great note, for whose capture the English officers had offered 5000 rupees as a reward, was caught by my Karens a few days ago, under my leading, and is now safely shut up in jail awaiting his trial. His capture reminds me of Sisera of old, for he was captured largely by women, though thought by his followers to be able to appear or disappear, jump a mile, or take upon himself any form he liked, at pleasure. The superstition of these idolaters is marvelous in the extreme. Our troubles are not at an end. The people are in a state of great excitement. We are in the midst of idolaters; we know not what each day has for us, nor when the people will rise. I leave to-morrow to try to raise arms for my people

in Rangoon. But few of our Christian Karens have been killed, though many have been wounded. Their escapes have been wonderful, and they say, "Surely God is with us, or we could not escape as we have."

I have spoken of our mission in Toungoo, but these risings are taking place all over the land, and the English are put to the exhibition of their best efforts to overthrow these insurgents. God, however, will smite these idolaters as he did in ancient days.

A. BUNKER.

Toungoo, Burmah, Mar. 9, 1886.

Why, friend B., we didn't know before that missionaries had to pass through such ordeals as you mention. It is a terrible thing for a Christian to be obliged to take up firearms, to be used against his fellow-men; but I presume there are circumstances where it can not be avoided, much as we should like to live at peace with all men. We presume you know of the troubles here at home in regard to the strikes, and of the conflicts between labor and capital. May God grant that a Christian spirit may soon prevail, both here at home and in far-away Burmah.

WOMEN AS BEE-KEEPERS.

MRS. AXTELL GIVES US A LITTLE TALK ON THE MATTER.

DEAR MR. EDITOR:—Permit me, through your pages, to give my views as to whether or not women should be deprived of that healthful, ennobling, and remunerative occupation, bee culture. Mr. Heddon has a right to his opinion as to whether it is degrading or not. There are some Christians who think it wrong for women to speak in church; but does it prevent her doing so? To the pure, all things are pure. In this nineteenth century, God is opening doors to us that no man can shut. "Go ye into all the world, and preach the gospel to every creature" might greatly be obeyed if longing, loving hearts knew of the golden mine of the bee-hive. For my part, I wish many more women could be induced to learn the business, especially those daughters who are allowed to sit in the parlor and let mother do the work, or fix up and go down town every afternoon, especially about train time. I am sure, that, were our girls encouraged to spend more of their time at home in such healthful, ennobling, and lucrative employment as caring for bees, there would be many more happy homes, both in the country and in town.

Many an overburdened mother would find it a *real* rest to leave her hot kitchen and don her bee-hat, and, slipping on her loose sack sleeves that cover hands securely, and with smoker in hand spend an hour or so with her bees. Who ever nursed trouble over a bee-hive? 'Tis all forgotten; and with glad eyes and delighted heart she delves into its treasures as she gathers up the golden nectar and stores it away for her husband's tea-table.

I say, let woman keep bees all she has a mind to; encourage her in every way possible, and then there will be room enough left for the sterner sex. Why, it almost makes me indignant to think that any one should dare to try to discourage us in so delightful an employment.

SARAH J. W. AXTELL.

Roseville, Ill., May, 1886.

The above is about what I should expect

of you, my good friend Mrs. A. There is another thing. They can not say that bee culture is all very well for women who are stout and strong, for we all know of your feeble health for so many years. If women feel as I do about getting out into the open air, you surely are right about it; for oftentimes when I go to bed tired at night I feel as if the greatest blessing that I have to thank God for is the fact that I am privileged to get out so much every day under the broad blue sky. By all means, let the women enjoy this blessing too, where they feel inclined to.

THE CHAPMAN HONEY-PLANT.

SOMETHING THAT IS SAID TO BE OF GREAT PROMISE.

AT the convention in Detroit, Mr. Hiram Chapman, of Versailles, N. Y., brought specimens of a plant which he claimed furnished honey in larger quantities than any other known species of the vegetable kingdom. He has grown the plant for several years, and on a sufficiently large scale, so that he was enabled to pass around specimens of comb honey said to have been produced by this plant. He sends us some plants with the following letter:

I ship you to-day fifty Chapman honey-plants which, if properly cultivated, will produce this season seed enough to sow half an acre of ground. It is my custom to transplant before it is so old, and I place it in rows two feet apart. I find, also, that a larger flow of honey is obtained in dry localities. To test the length of the blossoming season, cut back some of the plants as soon as the first balls appear, thus the vitality of the plant will be devoted to the production of other blossoms; the root will throw up strong healthy plants three or four seasons.

I do not intend these as directions, but only as hints to you in your experiments with these plants. I have no hesitation in sending you the plants, for my confidence in you is such that I know you will not take advantage of the situation and use it adversely to my interests; but to relieve yourself from any embarrassment or annoyance which may arise, please acknowledge through some bee-journal the receipt of the Chapman honey-plant for your *individual* use and experiments, and that it is being tested by you; also report in some journal, and to me, the result of your experiments.

One thing I ask as a favor to myself, and to all bee-keepers everywhere—Should you find that it does not thrive well, or prove successful in your particular locality, do not be hasty in condemning the plant as a failure, for not you alone are testing it; it is being experimented with, through a vast extent of territory, from Massachusetts to Nebraska, and the variation in soil and climate will probably exert a marked influence on its growth.

You can set the plants nearer if you wish, but you must consider that if your plants do well they will bloom three years or more. Set the plants in good soil, for the roots are old and they will develop. They will not bloom as early as mine will at home.

The Chapman honey-plant is a member of the great family to which the thistle belongs, and in some re-

spects resembles the thistle. It has not, however, the features which make the thistle so obnoxious, for it does not send its seed broadcast on the wind, nor spread from the root, and is easily eradicated from the soil; but to save the necessity of overcoming the popular prejudice against any thing called "thistle," I think it expedient to avoid giving it that name, and therefore request you to refrain from referring to it as "thistle" in any report you make, or article you write concerning the plant. HIRAM CHAPMAN.

Versailles, N. Y.

BOOK-REVIEW DEPARTMENT.

EXPERIMENTS IN APICULTURE, BY NELSON W. MC LAIN.

A COPY of the above report has been sent us, and, as was to be expected, we are not disappointed as regards its contents. In it the student interested in the science of apiculture will find a field opened for investigation.

The experiments therein contained are interesting, and some are quite conclusive on some of our old disputed questions. The whole is worthy of a reprint in GLEANINGS; but as our space is crowded, I will try to give a birdseye view of it, accompanied with several extracts. First we will consider

ECONOMY IN THE PRODUCTION OF WAX.

At the National Convention at New Orleans, Mr. Paul L. Viallon, in a paper which he read, stated that, in his opinion, the bees did not consume 20 lbs. of honey to make 1 lb. of wax; that this estimate was too high. According to his experiments, the consumption of only 7 lbs. of honey was required to make 1 lb. of wax. Prof. McLain, however, verifies the old estimate. He says:

If account be taken of the loss resulting from having the time and energies of the bees expended in wax-production instead of honey-production at a season of the year when there is most imperative need for uninterrupted and diligent activity in honey-gathering, and of the value of the honey consumed in producing wax, and of the labor required in preserving and preparing the wax for market, it will readily be seen that the production of a pound of wax costs the producer many times the current prices realized. About 20 pounds of honey are consumed in producing 1 pound of wax.

From the fact that McLain's estimate of the cost of wax is backed by former experimenters some years ago, it would seem that 20 lbs. of honey to 1 lb. of wax is very nearly correct.

WINTERING BEES.

After speaking of the different methods of wintering, and the conditions of success, the author believes that the lack of water to colonies in winter quarters is one very potent cause of dysentery. Here is what he says:

Excessive thirst, and prolonged low temperature, cause what is called "roaring in the hive." Disquietude from any cause induces excessive consumption; dysentery follows; death usually results. I have frequently quieted roaring in the hive, and restored the bees to their normal condition of quietude, by supplying water.

To supply the bees with water, a moderately wet sponge is placed in a hole bored in a suitable block. The whole is placed over the cluster, under the blanket or cushion. The addition of a little salt is recommended as being a preventive to dysentery. The water, he says, should be given when the weather is suitable, and he thinks it will largely prevent the loss of valuable colonies which might otherwise be lost.

BEES VERSUS FRUIT.

For thoroughly testing whether bees could injure fruit, a bee-proof building was constructed expressly for the purpose. The sides of the building were so made that they could be opened, and wire screens complete the inclosure. A stove was placed inside, so as to maintain a high temperature, and also to bring about as nearly as possible an artificial drought. Fruit of various kinds, especially grapes of the different varieties, was obtained from numerous sources, and placed inside. Three hives of bees on empty combs were also placed inside—two of the swarms being hybrids and the other Italians. As to how the bees regarded the fruit, the author says:

The bees were brought to the stages of hunger, thirst, and starvation. The house was kept locked, and we carried the key. Every inducement and opportunity was afforded the bees to satisfy their hunger and thirst by attacking the fruit exposed. They daily visited the fruit in great numbers, and labored diligently to improve the only remaining source of subsistence. They inspected and took what advantage they could of every opening at the stem or crack in the epidermis, or puncture made by insects which deposit their eggs in the skin of grapes. They regarded the epidermis of the peaches, pears, plums, and other fruits having thick covering, simply as subjects for inquiry and investigation, and not objects of attack. If the skin be broken or removed they will, in case of need, lap and suck the juices exposed. The same was also true of the grapes if the skin was broken by violence, or burst on account of the fruit becoming overripe; the bees lapped and sucked the juices from the exposed parts of grapes and stored it in the cells for food. They made no attempt to grasp the cuticle of grapes with their mandibles or with their claws. If the grapes were cut open or burst from overripeness, the bees would lap and suck the juice from the exposed segments of the grape until they came to the film separating the exposed and broken segments from the unbroken segments. Through and beyond the film separating the segments they appear to be unable to penetrate.

A test of this kind for 30 days, during which grapes of a thinner skin were tried, showed that the bees had no disposition to injure any of the varieties of fruit; and only when the grapes were rotten or broken open did they attempt to appropriate the juices. In one outdoor test, the grapes were dipped in honey, and the bees were allowed to get well started to robbing on them. The honey having all been licked off, the grapes were all left unharmed.

It is very gratifying indeed for us to know that these experiments have been made under the auspices of the United States, and that the results show that *bees do not injure fruit*. Whenever a controversy again comes up, we can with pleasure refer back to this report.

ARTIFICIAL FERTILIZATION OF QUEENS.

This has always seemed quite impracticable as well as impossible, and it is yet possible that the thing is not yet solved. Prof. McLain has struck upon a plan, however, which, to me at least, seems possible. In brief it is as follows:

After trying artificial fertilization in the cell upon imago queens without success, or, at any rate, with only partial success, he finally made experiments upon queens which had reached the age when they take their wedding-flight, or at the time when orgasm occurs. This, in most queens, is from 5 to 7 days from the time of hatching. His manner of accomplishing this result, we give in his own words:

When orgasm takes place, the generative organs of the queen are highly excited and much distended. We confined a queenless colony in their hive, and gave them a queen-cell which had not been disturb-

ed while maturing, and allowed the queen to hatch. When the virgin queen was six days old, orgasm occurred; and on the evening of the seventh day we removed her from the hive and placed drops of the male sperm upon the open vulva as she was held back downward, by gently grasping the thorax between the thumb and forefinger. The instant the male sperm was pressed from the testes and seminal sack of the mature drone upon the excited and distended vulva, it was curious to observe the effect. The action of the abdomen and vulva resembled that of young birds while being fed. There was the reaching up after the seminal fluid, and an action of the parts resembling the opening of the mouth and swallowing food. As much seminal fluid as could be obtained, by the imperfect method employed, from three or four drones, was utilized and readily absorbed by the queen, after which her wing was elipped, and she was dropped on a frame covered with bees and returned to the hive, and the bees were liberated.

This queen, he states, after assuming the appearance of a fertilized queen, soon began to lay, and her eggs in due time produced well-developed workers. Observe, that the bees were confined prior to the queen's fertilization, and after which her wings were elipped. Of course, it does not seem possible that the queen could have been fertilized by natural means, and yet she *might* have been. The field is now opened; and if Prof. McLain shall again meet with the same results in future experiments, and his work be verified by others, we shall then conclude that *artificial fertilization is possible*. We await the results.

IMPORTANCE OF APICULTURE.

Under this head I elip the following:

The estimated annual product ranges from \$15,000,000 to \$20,000,000, and the annual product of wax is about \$1,000,000 in value. Not more than 8 or 10 per cent of those favorably situated for the cultivation of bees are engaged in the pursuit. If even one-half of those favorably situated were so engaged, the annual product would not fall below \$75,000,000 or \$80,000,000 in value.

The United States imported 2,400,000,000 pounds of sugar, at a cost of \$94,923,500 in the year 1884.

In conclusion, for fuller details than I have been able to give, I would refer you to the report of "The Experiments in Apiculture," as issued by the author, Nelson W. McLain, Aurora, Ill. After you have read carefully the report, I think you will agree with me that Prof. McLain deserves a vote of thanks from the bee keepers for the work he has done.

E. R. ROOT.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

I READ your article concerning D. Staples sending out dead blueberry-plants. I sent one dollar to him March 15 for two dozen plants; and as they did not arrive by April 26, I sent a card to him to send them on. May 1st, a small package of dead sprouts, no roots at all, and as dead as a door nail, came. He should be advertised far and near. It is worse than stealing, to my notion.

FRED WIRT.

Keithsburg, Mereer Co., Illinois.

Friend W., we have placed to your credit the one dollar you have lost in this matter; and we will do the same with all the rest of our friends who have sent money to Delos Staples, and received nothing of any value in return. We hope other papers will take up this matter, and expose his business, before he can swindle many more through his advertisements.

HOW SHALL WE GET BEES OUT OF THE SECTIONS?

HOW ONE OF OUR FOLDING TENTS MAY BE UTILIZED FOR THE PURPOSE.

YOU ask me, in your foot notes to my article, Apr. 15, page 298, "How does friend Vandervort get the bees out of the cases?" I frankly confess I don't know, and this has been a vexed question with me ever since I have kept bees. For the last two years I have smoked and shaken out all the bees that I could, and then piled the cases up across each other, and set the folding tent over them with a small hole cut in each end at the top, and the most of the bees will usually leave in a few hours. I wish that C. C. Miller, James Heddon, or some others of the leading bee-keepers, would tell us how they get the bees out of the boxes. Some colonies have the habit of uncapping the honey as soon as the hive is opened. How are we going to manage these, for such honey is unsalable at the best prices?

This has been a cold snug winter here, and bees have dwindled some this spring; but we are having fine weather now, and the bees are building up very fast.

10—GEO. A. WRIGHT, 95—80.

Glenwood, Susq. Co., Pa., Apr. 24, 1886.

ARTIFICIAL PASTURAGE.

THE GOODHUE PLAN (SEE PAGE 327).

I AM satisfied, after a six years' experience of the method of artificial pasturage which I spoke of on page 327, it will produce surer, greater, and more satisfactory results every way than all other methods of artificial pasturage combined; while for cheapness, simplicity, and ease of working, I do not see how any other method can compare with it. I do not mean, however, that it should supersede all other plans entirely, but I think it should be given far the foremost place. I bought 500 lbs. of alsike last week, and expect to get most of it sown within two miles of my apiary. The total expense of getting it sown will not exceed \$10.00, and less than one day's time. Without my exertions, one-fourth of the above amount might perhaps be sown near me; and with very little care and trouble I expect to *quadruple* the quantity. Perhaps some of our experienced bee-keepers might like to make an estimate of the quantity of honey this extra 375 lbs. of alsike is likely to produce during the coming three years; thus they might make a calculation to try to find out how much it would cost to produce an equal quantity of the same quality of honey by any one or all of the other methods of artificial pasturage now known. I should like to see how such a balance-sheet would look.

I think if this plan were faithfully tried for a few years we should hear far less complaint about overstocking.

GEO. O. GOODHUE.

Danville, Que., Canada, April 29, 1886.

I think you are on the right track, friend G.; and from reports we have had, and also from personal experience in our vicinity, I am inclined to think that the cultivation of alsike is the most practical undertaking that has opened to us, to improve our honey-flow. Neighbor H. has repeatedly had good yields of honey in his apiary where he had

ids of alsike near, while the other apiary, five or six miles away, where no alsike was near, gave hardly any honey.

LETTER FROM SOUTH AMERICA.

CAN THE BEE-BUSINESS BE PURSUED PROFITABLY FROM THE SALE OF WAX ONLY?

THE honey-business is worth nothing here. You couldn't sell large quantities at 2 cts. per pound. My sole hope is the vinegar and the wax. Can modern bee culture be pursued to advantage by raising wax only?

Beeswax is worth here 30 cts. per pound, and still more in candles. If an apiary can be maintained with profit for the wax principally, please give me, in your next issue, full particulars of the method best suited for this design. Do you think some honey mixed with the cow's beverage would improve milk or butter? Is there any book about the uses of honey? Can candy be obtained from honey in hot weather, by artificial process?

MIGUEL RIBEIRO LISBOA.

Barbacena, Brazil, April 8, 1886.

Here is something else in the same line, from one of our friends in Mexico:

As bee-keeping in Mexico is an affair conducted in a manner entirely without skill, *El Industrial Mexicana*, a monthly cyclopaedia of which I am the editor, is now giving the first information on this subject. As we have neither use nor demand for honey, we are compelled to get all the profit on bee-keeping from the sale of wax, which ranges in price from 16 to 17 and 19 cts. per arroba (25 pounds). Wax has a very large demand in this country, and one could sell as much as he could get. Now, Mr. Root, does your A B C book give especial information for stimulating bees to build comb instead of gathering so much honey? You know folks don't eat honey in this country.

J. GARDIDA.

City of Mexico, April 15, 1886.

Dear friends, we are very glad indeed to get letters from so remote points, and we shall be very glad indeed to make GLEANINGS a medium for helping in the production of wax instead of honey, as far as it may be possible to do so. This matter has been discussed in our back volumes. The principal experiment we now think of is the one by friend Hasty, somewhere in our back numbers: also see A B C book, p. 288. Also see GLEANINGS for 1883, page 67.

While wax was worth from 35 to 40 c., and we were obliged to import it from Europe in order to get enough to supply the demand for comb foundation, it was considerably talked of. The market price now, however, is only from 20 to 25 cts. Still, as the price of honey has declined in about the same ratio, it may be well to consider the production of wax in our apiaries, as well as the production of honey. One thing we may do with safety, in any event, and that is, take pains to save every particle of wax the bees produce, allowing not an ounce to go to waste.

We shall be very glad to get reports in the matter from any of our readers; but so far I believe experiments have not resulted very encouragingly. With a mild climate, however, and an uninterrupted flow of honey,

no doubt the chance might be much greater for success. I have never heard the question discussed as to making cows eat honey. I suppose it is because it costs too much here. Cows are very fond of maple syrup, or sap, however, and no doubt it might augment the quantity and quality of milk and butter. Friend Newman of Chicago, Ill., has a little book called "Honey as Food and Medicine." We mail you a copy. The A B C book tells something about bees building comb. We have sent you a copy, and hope you will find it helpful.

CLOSING THE ENTRANCE OF HIVES DURING WINTER.

HOW TO KEEP A CELLAR COOL.

ALTHOUGH but a novice in bee culture, yet I have often wondered why apiarists did not recommend the closing of the entrances to the hives when putting them into winter quarters, so as to prevent their flying out.

Last fall I put 11 colonies, carefully prepared, into my cellar, with the entrances open as directed. The cellar was well ventilated, and quite dark; yet the bees would come out by the hundreds, and, of course, perished. Now, I should like to know what evidence there is to show that a large proportion of those lost would not have lived to protect the young brood in the spring if they had been prevented from flying out. Two of the colonies died before March, and I fear that several of the others are quite weak, and that spring dwindling will follow.

Now, Bro. Root, I should like to ask what evil could result by keeping the entrances closed with wire screen, or something of that kind, at the same time being careful to keep the openings clear of dead bees, and giving them a good fly once in a while on fine days. The weather becoming very warm for several days, after the middle of April, the bees became uneasy; but having obtained some snow and ice during the winter I placed a pailful once, each warm day, in a tub on top a barrel in the cellar (17x30), and made the place totally dark, and the bees became as still as mice.

Last fall a neighbor of mine put 13 strong colonies, with lots of honey, into a warm cellar; but they were exposed at times to the light of the sun; and the result was, the bees came out by the thousands, and were chilled to death; and before the first of March, 9 out of the 13 were dead, leaving from 12 to 30 lbs. of honey per colony behind. Now, who will venture to say that, if the entrances had been closed, as suggested above, the bees would still have perished. I for one must acknowledge being very skeptical in the matter.

W. C. WHITE.

Hamilton, Ont., Can., April 26, 1886.

Friend W., the matter of closing the entrances in winter has been very fully discussed in our back volumes. Sometimes it succeeds very well, and at other times the bees crowd about the entrance, become excited, and may be smother the whole hive in their frantic efforts to get out. I believe it has generally been abandoned. We practiced it several winters; but instead of trying to confine the bees by fastening wire cloth over the entrance, we put wire cloth over the whole top of the hive. Those fastened in their hives wintered about as well as the others. We noticed very little difference.

WHAT KILLED THE BEES, ETC.?

LAWYERS FOR BEE-KEEPERS.

I WENT into winter quarters with three colonies, as I thought good and strong. One died, and, strange to say, it died with plenty of natural stores. I could not account for it. When I examined them in January there was but about a single handful of bees. These were on a center comb, in the middle of which was a small patch of brood about as large as the palm of my hand. They had plenty of pollen, as well as honey. We could not find any queen. What do you suppose caused them to "play out" in that style?

I started in the spring with two colonies. I did not let them swarm. We had a poor honey season in our neighborhood, but I sold about \$9.00 worth of honey and wax, and ate about \$1.00 worth. It was all comb honey. I was not at home, except at night, and consequently had to keep the bees in the house where I slept. We got along finely together.

A DOG EATING BROOD.

In GLEANINGS for Nov. 15, I. R. Good speaks of "eating queen-cells." This reminds me, that, summer before last, while I was transferring some bees for my aunt I laid a piece of brood out to one side, and when we went to look for it the dog had eaten it up. It was a good large piece of brood too, quite as large as my hand.

SWARMING BEES.

In the latter part of 1883, a lawyer of Burnet, through my influence, bought a swarm of bees; last summer his bees swarmed, while court was in session here. As he was expecting it he asked a gentleman in the court-room one day if he knew any thing about swarming bees. His friend said he did.

"Come," said the lawyer, "and go with me to dinner."

He went. The bees had settled in the top of a sapling.

"Now," said the guest, "you take an empty box and hold the open end up to receive the bees, while I shake them off."

My legal friend obeyed, while his guest procured a large stone, quite as much as he could handle well. He struck the sapling a tremendous blow.

The bees covered the lawyer, who dropped the hive and pursued his friend, whom, I need hardly say, had taken to his heels. Round and round they chased each other, through the orchard and over the garden. Of course, a string of bees followed as they went.

"I thought you told me you knew how to swarm bees," was the first question asked.

"I do; but I don't know much about hiving them," was the answer.

FIGURES AFTER THE NAMES.

Please tell me what those figures before and after the bee-keepers' names indicate. I thought at first it was to show how many colonies one had; but how can one determine, when figures are used both before and after names?

C. W. HARDY.

Burnet, Texas.

Friend H., I do not see any thing strange about the way your bees died. The colony was so weak that their queen died, and then the rest, as a natural consequence, followed. The queen laid the eggs that produced the brood, before she stepped out. We general-

ly suppose that a lawyer can do almost any thing if he sets about it; but it seems in the above case that the combined talent of two lawyers didn't manage that swarm of bees successfully.—Figures before a name mean so many years in the business; after the name, the first number means fall count, and the other spring count.

POLLEN FROM THE CACTUS.

WHAT IS THE DIFFERENCE BETWEEN A WASP AND A HORNET?

AFTER reading what Ernest said about bees working in rye meal, I went out into a pasture opposite our house where I saw them gathering pollen from the cactus flowers.

I noticed one of them alight in a flower three inches across, containing enough pollen, I think, for half a dozen loads. When he came out of his bath he was yellow with pollen; and hanging to the edge of the flower, sometimes by one foot, with a quick motion of his other legs the pollen was scraped into the baskets, and with the middle legs neatly packed down, after which he flew away. On returning to the house I secured some pollen from an incoming bee, and found that it was quite sweet, while that in the cactus flower was tasteless. This confirmed the opinion which I have entertained for a long time, that, in packing the pollen in their baskets, they used honey to stick it together, and the honey is supplied from some secretive glands. While the pollen adheres readily to the bee, it did not adhere to my finger, which was even moist with perspiration. The cactus is rich in honey as well as pollen, but it can not be reached by bees. If honey were as plentiful in proportion, in this locality, as pollen, the yield would be immense. My bees brought in pollen last winter as late as December 15th, and commenced again on the 14th of February. There are but few periods when pollen is not abundant. In a week or two, cactus will be in full bloom.

About two weeks ago drones made their appearance in one colony, but were soon dispatched. The young drones were even torn from the cells and carried out.

Why are robber bees nearly always black and slick? I mean those professional robbers.

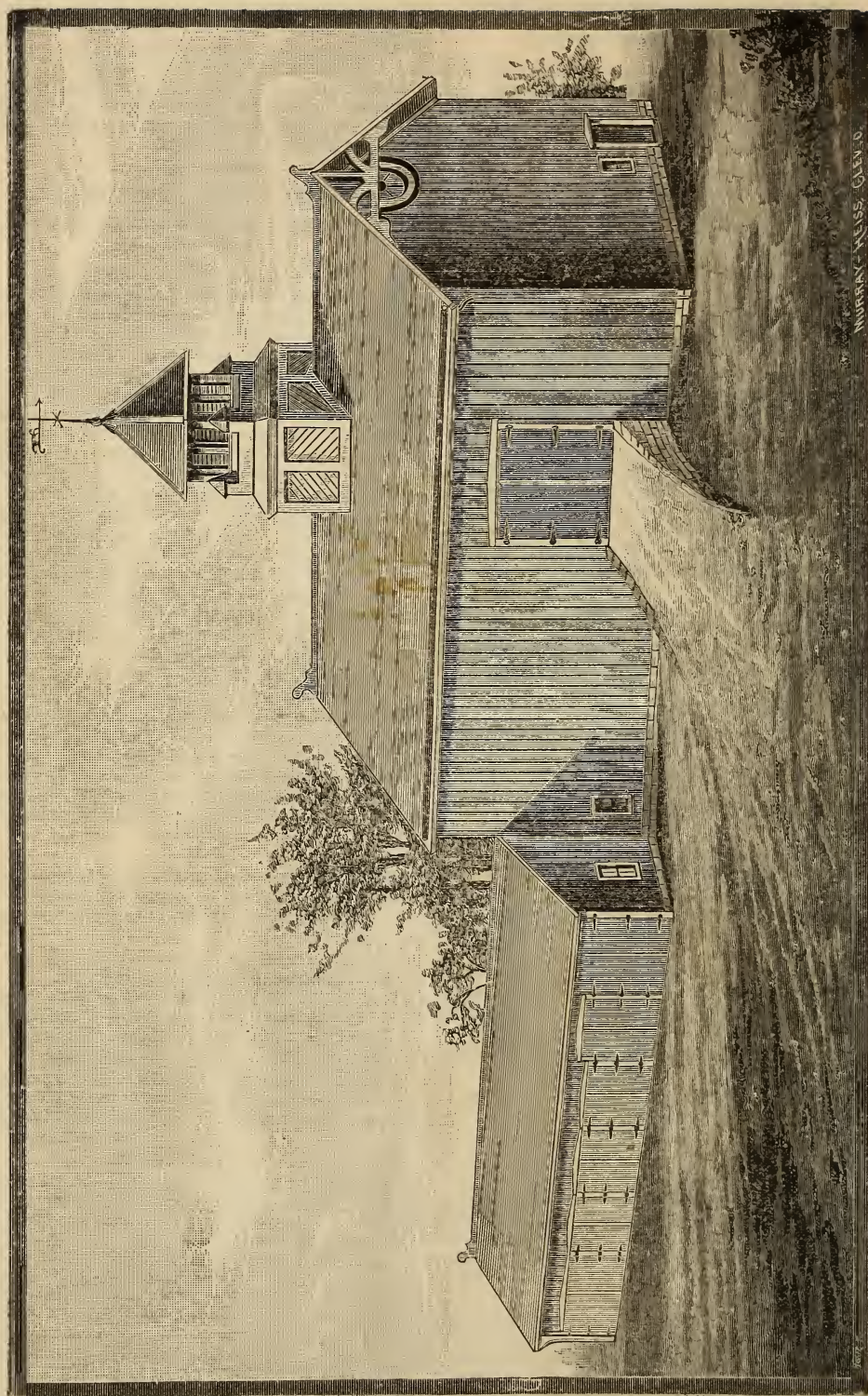
What is the difference between a wasp and a hornet? Please describe the kind of nest that each of them builds. Can a wasp or hornet prolong the development of its young by withholding food?

I often see my bees come in so heavily laden that they have to stop on the alighting-board half a minute, and fan themselves, before they can enter the hive.

T. F. McCAMANT.

San Antonio, Texas, April 22, 1886.

Friend M., I guess you have hit the motions, in regard to handling the pollen, about right. I supposed the drones were turned out because of a dearth of honey. The professional robbers become black and slick by squeezing out and in small holes. Sometimes they get their fur pulled off by the sentinels of the hive grabbing them.—Your questions in regard to wasps and hornets come rather under the head of entomology, and I feel sure that Prof. Cook will tell us about them, especially the matter of prolonging the development of the young.



T. B. TERRY'S MODEL BARN AND TOOL-HOUSE, HUDSON, OHIO.

EXTRACT FROM TERRY'S NEW BOOK.

SOMETHING ABOUT HAY; THE DIFFERENCE BETWEEN HAY MADE ON DRAINED AND UNDRAINED LAND, AND SOME KINDRED MATTERS.

WE are so much pleased with the new book mentioned above, that we have decided to give our readers a single chapter as a sample, and in connection with it we submit a picture of Terry's barn and tool-house, shown on the opposite page. The tool-house was illustrated and described last fall, on page 720, GLEANINGS for Oct. 15. The description of the barn is almost too lengthy for our columns; but it is so intimately connected with the subject-matter of the book that the book is built up in and around the barn, as it were. The following chapter, you will notice, comes in just abreast of the haying season:

WHAT KIND OF HAY?—DRIED GRASS, RAISED ON FERTILE DRAINED LAND.

If the reader has decided to keep his stock in a warm comfortable stable, and to feed and water them properly, the next question which naturally arises is, What shall I feed them? We will discuss this question rather fully in this and following chapters, and perhaps get a little off from our text now and then, as it is a very important subject.

On many farms the answer to this question may be such as to give the owner an opportunity for a grand success or a bare living. These are pretty strong words, but they shall be made good before these chapters are finished, by facts that no one can gainsay.

First, in regard to the hay fed, let it be early-cut or dried grass, and a good share of it clover, if clover can be made to grow on your soil. To this, my friend Mr. D. E. Fenn, of Tallmadge, at our farmers' institute, held in Cuyahoga Falls, added, "Let the grass be raised on well-drained land." He thought that tile-draining would pay for grass and clover, as the hay is of better quality. There is no doubt but that he is right. The hay should be raised on fertile, well-drained land. Hay isn't hay, any more than butter is butter. I saw a merchant buying butter of a farmer for 12 cts. per lb., the other day; and if any one, I think the merchant got cheated. I bought a crock of my neighbor, and paid 28 cts. per lb., and it was worth it. Now, I have seen hay grown on rich drained land that would yield four tons or more, in two or three cuttings, during the season, and hay grown on land so poor, and filled with stagnant water, that it would not think of making more than one crop in a season, and that, perhaps, half a ton to the acre, or three-fourths; and there was as much difference in the feeding value of those two lots of hay as in the value of the two lots of butter spoken of. In the case of the butter, possibly analysis would not show much difference in the component parts of the two sorts; but our senses of taste and smell are not governed by analysis. We like a fine flavor and aroma; so do our animals. I have never known of any analysis of the two kinds of hay mentioned above; but from experience in feeding I should

think there must be a decided difference in their component parts; at any rate, the cattle know which is most to their liking.

A friend was once rather making fun of my rank, coarse hay, grown on rich drained land. He said the cattle would take his finer hay, grown on land that produced only about a third as much per acre, first, every time; that all stock liked such hay better; that mine was too coarse and woody. After some dispute we agreed to leave the matter to be decided by a lot of cattle I was feeding in the stable. We put samples of his hay and mine along in the manger, so the animals could take their choice, and, much to my friend's disgust, they took my "woody, coarse" hay every time. No need of analysis to tell them which was the better. It doesn't follow, of course, necessarily, that they would not gain as much flesh on a ton of my friend's hay as on a ton of mine, although it was not as well relished; but from other experiences I feel sure they would not. The matter of relish alone goes a good way. When hay is, as one farmer expressed it to me, "medicine" to one's cows, the best results can not be obtained.

When I first bought my farm, which had been rented and abused till no one wanted to rent it at any price, we mowed over a good many acres to get a few tons of hay; and although it was cut reasonably early, the quality was so poor it would hardly keep the breath of life in the stock during the winter. Grain was bought and fed with it, and thus we managed to get along. Since that time, cattle have been sold for beef in the spring—not very fat, of course, but good fair beef, that had not had a pound of grain during the winter. This has been done as an experiment, to see what could be done with choice hay alone; but it is not, of course, the wisest way. Cows have been milked twice a day all winter, giving a good mess of milk, on dried grass alone. Horses have drawn heavy loads of potatoes and wheat to Akron to market, some twelve miles, fed on hay alone, week after week and month after month, some years, and kept in fair order. These horses would have given out in one week, if fed on the hay we first raised, before the wet land was tile-drained, and tillage with a little manure and clover had made our land fertile. So they would have given out in a short time if the hay had not been cut early, when at its best, and if a part of it had not been clover. I am not advising any one to keep his horses on hay alone, but am merely using my success in this line to illustrate what can be done with prime hay. My work-horses are kept this way because I can keep them healthy, and ready for business, on such feed, cheaper than on any other. One needs, however, the right kind of horses—not of the slim race-horse breeds—and they need the right kind of driving.

When I began farming, hardly any one in this vicinity thought of cutting any hay until along about the last of July, and many were still later. I was new at the business, but common sense told me to cut the grass when it was green, and relished by stock, and not let it stand until it was so ripe as to

be no better than straw. Farmers used to say to me, "Why, your hay will all dry away cutting it so green, and then you lose a good deal of weight by its not being more than two-thirds grown." They forgot that the second crop came right on as soon as I cut the first off, and made as much growth in the same time, perhaps, as the first would if I had left it standing. If it did dry away a little more, what was left was extra choice, and more than made up in quality what it lacked in quantity. About the first of August the second crop was cut—about the time others were securing their first one; and some years three crops were cut, the last one about the first of October. Some haying was doubtless done at the town-bred book-farmer; but when he began to increase his stock until, instead of nine cows, forty to sixty were in the barn in winter, it was evident that something was the matter. We do not claim any credit; but numerous mowing-machines are now running as soon, or sooner, than ours. Our best farmers who raise wheat strive to get their haying all done before the time of wheat-harvest. But in traveling over the country, one sees large quantities of grass standing for weeks after it ought to have been cut. Then the farmer feeds grain—bought, or of his own raising—with it, to make it young again, or to make it as good as it might have been alone without grain, if it had been cut at the right time, and properly cured. Probably its being more difficult to cure is one reason why all do not cut their grass earlier. It is some more trouble to cure early-cut hay. Usually, the better a thing is, the more it costs. The easiest way is rarely the best way. It is easier to shake apples from the tree than to pick them; but it is hardly the best way. It is easier—takes less labor—to stack our hay, and feed the stock around the stack; but few farmers, however, can now be found in this part of the country who will advocate the plan. It is easier to let the grass stand until about ripe, and then cut it and follow right up with the rake and get it right in. There is no fussing or bother. One can keep the men right at hard work all the time, and shove the haying right along. I will admit all this; but when your cows look pinched and unthrifty next spring; when their excrement is almost as hard and dry as a stone; and when the first warm days come along, and you have to begin "shoveling the corn meal into them," and every now and then have to call in the neighbors to help lift one up; when you have got a few hides on the fence, and the milk of your dairy will hardly pay the feed-bill; then, if you are not prejudiced, you ought to begin to "see where you missed it;" to see that the easiest way is not always the best. What was the trouble? Why, you had, for one thing, let your grass stand until it had lost one-half of its value; then you expected your cows to return you full value on it, but you couldn't cheat nature. The effect follows the cause; and for every dollar you saved in trouble at haying time, you may have lost five. This you have a perfect right to do, if you can stand such

business; but have you any right to half starve those poor cows? Think of the suffering they endured, which you could have prevented if you had cut that grass at the right time; and then you would like, would you not, to see those cows all on their feet, strong and healthy, the hides all animated once more, their manure thin and healthy, as in summer time, and a good flow of milk coming from them without feeding them much grain? Wouldn't your prospect for milk this summer be much better than now? Will you think of this, and hire an extra hand, and begin your haying early another year, and get it all secured, if possible, before wheat-harvest? Your cows will thank you, and you will begin to have more faith in the stories you hear of dairymen who make \$60.00 or \$70.00 from a cow in a single season.

Another reason why hay is often left to stand too long is, that the farmer has too many irons in the fire, or too much to do. His farming is not properly arranged so as to prevent clashing. The farmer who undertakes too much often loses by it. Some crop must suffer. If the hay can be secured before wheat-harvest, well and good; you can raise wheat and not have any clashing. If a part of it has to stand over for two weeks while you are cutting and getting in your wheat, you may lose as much on the hay as you make on the wheat.

MY REPORT FOR 1885.

IS THIS A GOOD LOCALITY FOR HONEY? WHAT SIZE OF SECTION IS BEST?

THE last season here was again short; at least, we call it short. Doolittle would not think four or five weeks of good honey-flow very short, estimated by his experience of a good yield. The white-clover harvest lasted about five weeks, but it always takes bees here a week to get started, so they stored all their surplus, I might say, in four weeks. In that time I got 40 to 50 lbs. from my strongest colonies, together with a swarm. After July 4th nothing was done, except that a few managed to fill out a few sections already nearly full. This is nothing to compare with Mr. Doolittle's reports for 1885; yet, so far as my experience goes, bees gathered honey as fast during June as they ever do. It was evidently drought that cut short the white-clover harvest. Later in the season there was a great deal of heart's-ease, and the fields were yellow with Spanish needles; yet I did not secure 20 lbs. of honey from these flowers; and what I did get was stored in empty combs. They stored in the brood-chamber enough to keep 60 stands until the last of April, I think, but I shall have to feed some to carry them till clover season, unless fruit-bloom yields a great deal more than it has of late years. This later season was not too dry; the blossoms ought to have yielded honey. Why they did not, no one here seems able to tell.

THE SUMMING-UP.

I started into summer with 45 stands, which would have made about 30 good ones. I increased to 75 by natural and artificial swarming and uniting, besides a few swarms I lost. I obtained 900 lbs. of comb honey; one-tenth of it, perhaps, not very well filled out, and 400 lbs. of extracted, all from white clover;

Those 75 colonies I doubled down to 60 for winter. I think I shall average 15 cents per lb. for the comb honey, and a fraction over 10 cents for the extracted. I market all in Springfield, and the country and villages around. This result of 25 lbs. to the stand is rather small. The showing is better when I consider that nearly all was obtained from about 30 colonies, a number of which were not able to go into surplus boxes until the middle of June, bringing the average up to 40 lbs. But even that is no very great affair compared with the reports of our best bee-keepers. I am, however, better satisfied than ever before. I feel that I have worked to better advantage, and succeeded better than I have yet before done. I have certainly done a great deal better than any one else around here. The general verdict of my neighbors is, that bees do not pay. I should think not, the way they manage. Some with several colonies have not taken off 5 lbs. of surplus, and none of them very much. I suppose two-thirds of the bees will starve out as they did last year. I had just carried a case of honey into a store last August, when neighbor Ike came in. He looked at my honey, in nice Simplicity boxes, I tell you.

"Why, George, how is it that you can get so much honey when none of the rest of us can get any?"

"Simply because I take care of my bees—pay attention to them—put my time to them. To make any thing from bees you have to cultivate them the same as you would a crop of corn."

In June, 1883, an old gentleman about ten miles from here came to see how I fixed to raise section honey. He had then 35 stands, and he closed the year with 80.

"I do not do any thing with my bees," said he, "but live them and take off the honey; but they always do very well."

A few weeks ago I saw him, when he told me he had gone from 100 down to 16, and the moths were taking them. He does not think "they do very well" now. I could tell several more stories of the same kind. When I compare these reports with many in GLEANINGS, I am led to inquire,

IS THIS A GOOD REGION FOR BEE CULTURE?

Does white clover yield more copiously in other localities than in this? Does the clover season last longer in other places? Here—Central Illinois—there is no basswood. White clover seems to be the only crop that can be depended upon at all. Heart's ease and Spanish needle yield well sometimes, but they have failed the last three years, and fruit-blossom never has yielded much for me. In 1882 and '3 there was considerable honey raised; and if I had known as much then as I know now I could have produced 60, perhaps 75 lbs., per colony. But they were regarded as exceptionally good seasons here. Is this a comparatively good honey region, or is it even fair?

WHAT SIZE OF PACKAGE SHALL WE USE?

I can not agree with friends Root and Hutchinson, that a Simplicity section 1½ or 1¾ inches wide is the coming box. The narrowest I have used is 1¾, and I am not going to order any more, I think. Why? Because they do not suit my customers. In Springfield a box that holds about a full pound goes very well. I have sold honey there in the old 1½-lb. and 2-lb. boxes, and the merchant who has sold as much for me as all others, there and elsewhere, told me once that he did not see but the larger packages sold as well as the smaller. This fall I took him a case of 1¾ boxes, and his customers did

not like them. Nearer home I find that the largest boxes actually give the best satisfaction. That fact, and the fact that they are continually complaining about the price, makes me think more than ever what I said over a year ago, that it is not best to throw away all our old bulk boxes; for I certainly think that honey can be produced with less cost in that form. Certainly it will pay me to use several hundred large sections; and if it will pay me, why not others? Also, if they do not like honey in smaller than pound lumps in Springfield, I do not see why they should not dislike them elsewhere.

GEO. F. ROBBINS, 45-75 60.

Mechanicsburg, Ill., Jan. 1, 1886.

REST FOR THE OVERWORKED.

MRS. CHADDOCK TELLS US HOW TO OBTAIN REST, AND STILL BE BUSY.

DOCTORS disagree, so do friendly advisers. I am fully persuaded that, if I had followed one half the advice that has been given me, I should have been *non est* long ago. Now, they seem to have settled down on *rest* or *stir*. About half of them advise *rest*; the others say, "*Stir out, stir out, or you will die.*"

I was in a large water-cure establishment once for a few weeks, and I then learned that to rich people the advice was daily given, "*Rest is what you need, my good woman; complete rest; your mind is too active for your body, and if you do not rest you will land in the insane asylum.*" To the poor folks the same doctor said, "*Stir out, stir out, young man; you don't want to go droning around here for ever. Use your will power—exert your thinking faculties, and get well.*"

One day the doctor lectured on "*Rest.*" He said, "*You want to lie down and rest, just as a horse or cow does when sick. Nobody has to tell a sick cow. 'You are better now, and I think you had better get up and go to eating grass.' No, sir; a cow just lies there till she gets well, then she knows it, and gets up and goes to eating. And don't keep all the time thinking about the money that it takes to keep you here; you had better spend every dollar that you have, and be cured, than live as you are living now.*"

It was a good lecture, and was applauded to the echo. Now, in the room next to ours was a poor young man who had stayed at the cure till he had spent all his substance, and yet was not healed, and the doctor walked straight from his lecture, with *rest, rest, complete rest*, still warm on his lips, and said to the poor young man, "*Why, man alive, why do you lie here? Why don't you stir out? Stir out, I tell you. You have a thinking mind, do you not? Well, use your will power; force yourself to get up and out; take interest in something; you will die if you don't.*"

That convinced me that rich people ought to rest, and poor ones stir out. For my part I like the *stirring out*. I'd rather drive a mule team than play the piano. I can do it better, and there is vastly more fun in it; but part of the time I am not able to sit up, then I rest. As to Mr. Root's *resting* by digging the ground half an hour, that was rest.

Rest, according to my notion, is any thing that eases the strain on the nerves or muscles, or whatever is tired; and work that can be left at any

minute whenever a fellow's back begins to ache is just the same as no work at all; it doesn't tire anybody. Now, if Mr. Root were baking a dozen pies, eight loaves of bread, and getting dinner for work-hands, and waiting on a sick man all at the same time, and could not leave any of it till the dinner was over, I do not think it would be much of a rest. I like to dig in the ground for about ten minutes, then I want to change work with somebody. Sometimes I think that the pressure—the responsibility—the feeling that a thing *must be done*, is harder than the work.

As to going South, I had numerous invitations, but none from Florida, where I wanted to go. I had *warm* invitations from five States; and if I had had the dollars I should have traveled all around among the folks. As it was, I stayed at home and wrote love-stories; and the only geese that I picked were the editors who bought them of me. But I must go somewhere or see somebody pretty soon, for I have used up all the people I know—married them off and *deaded* them, and I now sigh for new characters. I do not think it is hard work that makes farmers' wives crazy, but it is the monotony—the staying at home for seven weeks, and never seeing any one but one's own family.

Vermont, Ill.

MAHALA B. CHADDOCK.

PROF. COOK'S EXPERIENCE WITH MAPLE SYRUP, ETC.

A SIMPLE PLAN OF RESTORING MUSTY SYRUP.

FRIEND ROOT:—We thought we were the sweetest and most stuck-up people of the country at our house, as we have honey to sell and to eat, to give away and to keep. More than that, maple syrup from six hundred trees has helped to sweeten our food if not our tempers. Our relish for these incomparable sweets has made us glad that you at the "Home of the Honey-Bees" were equally sweet and equally "stuck up." In handling our syrup this spring we have discovered a fact of considerable practical and scientific interest. Through an accident, 5 gallons of syrup were put into a musty can. Syrup, like cream and butter, is very quick to receive taint from surrounding impurities, and so, as we might expect, this syrup was apparently ruined. I first boiled the syrup, and found the musty taste still pronounced and offensive. I then reduced a little of the syrup to sugar, and found it and the must still companions. After that I added equal quantities of syrup and water, and boiled for some hours till all was again reduced to the consistency of prime syrup, 11 lbs. to the gallon, when, to my joy, I found that the syrup was as fine as any ever eaten. I presume the same result would have been attained had no water been added, and the syrup repeatedly heated to the boiling-point and cooled off.

This is quite in line with the admirable experiments of Tyndall. He found that many fungi could be killed in his flasks, and the contents rendered sterile, by prolonged boiling and speedy scaling while hot, while boiling for a brief period did not render the liquids sterile. The theory is, that the liquids contain the fungi and the germs. The fungi are killed by brief boiling, which does not kill the germs. Prolonged boiling or repeated boiling either kills the germs or else develops them, after which a brief boiling destroys them.

This fact has much of practical value to suggest. If syrup is tainted in a sugar-bush by putting it in a musty vessel, it can be put in the front of the evaporator with sap, and again reduced, when all taint will have been destroyed. If any person has musty syrup, honey, or fruit, we note how the must can be destroyed. I have already suggested this treatment to two or three who have turned it to practical account.

Is it generally known that maple syrup will retain all its perfection of flavor, if canned and sealed while hot? We have had delicious syrup on our cakes all winter, and just as fine as when new. It is claimed by some of the Ohio sugar-makers, that, if vessels are filled full of the syrup when fresh, and then sealed tight, the syrup will keep as well as if canned hot. We are trying that with a little this year, and will report a year hence.

A. J. COOK.

Agricultural College, Mich., Apr. 21, 1886.

Why, friend C., is it really possible that you have a 600-tree sugar-camp? I would give almost any thing to see you out in the sugar-camp, directing sugar-making. We have had experience several times with musty syrup, and we never found out any way to remedy it better than scalding. But we have noticed this: That sometimes the scalding helped the matter, and then again it didn't; and you have probably given us the key to the different results at different times. I have repeatedly been told that adding water to maple syrup, and then boiling it out, always darkens the color. Do you not find this so? Here is something further from a friend near us, in regard to the maple-sugar industry:

WANTED, A BOOK ON MAPLE-SUGAR MAKING.

In making sugar this spring I have met with a number of important points on which I needed information, but could not get it. There are hundreds of maples about here that might be tapped with profit, if people could find out how to make a good article cheaply. Have you ever thought of a "Maple-sugar book," on the plan of the "Potato-book," the "Carp-book," etc.? In my opinion, such a book should not be written by an evaporator man—we can not afford to lay out \$75 or \$100 for a boiling-apparatus, and then sell syrup for 70 cts. or less per gallon. A \$10 evaporator, a good arch, and proper information on how to manage the sap, the boiling, the canning—in fact, every thing, would prove valuable, I think.

As the primitive forest gradually disappears hereabouts, its place is taken by maples—some farms already having but few trees other than the maple. And there are not a few farms in this immediate vicinity that could tap from 500 to 1000 trees—a number that not many years ago seemed enormous.

If you conclude to do any thing in this line, I will try to do my share toward making the book a success by furnishing a list of questions that might, perhaps, be of some use to the writer or compiler.

ANTON LEISTER.

Brunswick, Medina Co., Ohio.

And now, friend Cook, can't you write this book, or get somebody to do it? I might add, that the finest syrup furnished us this season was not made with the evaporator at all, but simply with a common pan, boiling all the sap that ran each day, were it much

or little, and keeping the utensils bright and clean, no matter how much trouble it might take to do it.

STRENGTHENING WEAK COLONIES.

DOOLITTLE'S PLAN OF DOING IT.

WHEN spring arrives, most bee-keepers find that they have more or less weak colonies, even when their bees as a rule winter well; while now and then a spring finds some of us with a loss of nearly the whole apiary, and the few colonies remaining are mostly weak, or perhaps we have a part of the few weak, and a part strong. If many weak colonies are on our hands, and we are not anxious to augment our numbers, probably the best way would be to unite them till all are in comparatively good condition. But it more often happens that, when we have many weak colonies, we are the most anxious to save them all if possible, for we get many weak colonies only after a heavy loss during winter, in which case we are desirous to increase all we can, so as to utilize our empty combs before the moths destroy them.

Many ways have been devised to give strength to these weak colonies so as to keep them along till settled warm weather comes, so that they could build up; but most of them have proven failures when put in practice. The most general plan is that of giving hatching brood from the strong colonies to them; but as a rule this results in a loss of a part if not all of the brood; for the amount given must generally of necessity be more than the weak colony can cover and keep warm, while the young bees so hatched seem to lack the necessary vitality among so few old ones to keep the warmth up during cold nights; hence it often happens that all perish together.

If brood is given it is better to adopt the plan the editor did several years ago, which was to take a cake or biscuit cutter and cut out a small portion of a frame of brood, and all of that just gnawing through the cells, and insert this in the weak hive in the comb, which the few bees cover. However, this does not always work, as the editor well knows; besides, it mutilates the combs so as to spoil their beauty; and when wired frames are used it is out of the question altogether.

Well, after all my trials, I have at last struck on a plan which has so far worked to perfection, and by it I am able to put a weak colony right "on its feet" without materially injuring the strong ones. The plan is this: Take the wire-cloth box I have before described in GLEANINGS. Perhaps I had better describe it again here, so that the new subscribers can make one. Make a box of any size to suit you (I use one holding about six quarts), and cover the two sides with wire cloth. Through the top, bore a hole to admit the small end of a large funnel, such as is used by those who sell bees by the pound, and make a slide to cover this hole after the funnel is removed. Now proceed to your strongest colony (if you have no such, one should be bought, if possible, as it will pay largely on the investment), and look it over till you find the queen. Put the frame she is on aside from the others, so as to make it impossible to get her in your box, when you will select a frame well covered with bees (or two partly covered). Now drum lightly on this frame so as to

cause the bees to fill themselves with honey, and set it down by the hive. While the bees are filling themselves, put back the frame having the queen on, and adjust the hive, except leaving a space for the frame which the bees are on. As soon as they are well filled, adjust the funnel in the box, when they are to be shaken down through the funnel, and the box closed with the slide. After putting the frame back in the hive, and closing it, the box of bees is to be carried to a warm room and a blanket thrown over the box to keep it dark, when it is to stand three or four hours. During this time the bees will realize their queenless condition, and set up a great buzzing, telling plainly of their loss. Now go to the weak colony you wish to strengthen, and get their queen, which is to be put in with the bees in the box. To do this, set the box down suddenly so that all the bees will go to the bottom; then quickly draw the slide and drop in the queen, closing it again. Cover up again and leave until about sunset, or three or four hours more, when the bees will be found clustered compactly like a swarm. Now go to the colony from which you got the bees, and get a frame of hatching brood, without bees, and put it in the hive containing the weak colony, when you will at once hive the bees from the box on it. If the evening is at all cool I shake the bees from the box right on top of the frames so that none shall get chilled. I think all will see the "why" of the plan, without my explaining further. G. M. DOOLITTLE.

Borodino, N. Y., April, 1885.

Friend D., your plan will work all right, without any question; but you will excuse me for suggesting that there is too much machinery about it to suit *our* work. If I wanted to strengthen a colony during apple-bloom, or at any time when the bees are working fairly, I would just lift the frame—brood, bees, and all—out of any hive that could spare it, during the middle of the day, when most of the bees are in the fields, and set it in the hive that needs strengthening. I would be careful that the frame did not contain very much unsealed brood, however. As most of the flying bees are in the fields, the bees covering the combs in the middle of the day will be, as a rule, young ones; and with us, such a frame of bees will not quarrel nor be quarreled with, one time in ten. Just set them quietly between the combs of the weak hive, and let them get acquainted their leisure. If they do quarrel, a brisk at smoking will generally make them peaceable with each other.

MOSQUITO-BAR VEILS VERSUS THE GLASS FRONT.

REASONS FOR PREFERING THE LATTER.

SOME seem to think the objections to glass fronts very "obvious." Perhaps the glass fronts they have experimented with indeed bear their "obviousness" upon the face of them; but when any one claims that glass can not be so adapted to and inserted in veils as to render objections "few and far between," we are prepared to come forward and bear testimony to either his culpable ignorance or desire to misrepresent. We desire to present the claims that the glass front should have upon the favor of the progressive bee-keepers of our age.

Just here let me remark, that the bee keeper who is so reckless of the powers of vision that God has given him as to *strain* his eyes peering through a *no-glass* veil, deserves the punishment so surely to be meted out to him. What did friend A. H. K. Blood, of Quincy, Mass., mean when he wrote us it would have been worth thousands to him had he never seen a bee, rather than injure his eyesight as he had by using a veil without glass?

OBJECTION NO. 1.—“GLASS WILL BREAK TOO EASILY.”

Then discard it from your windows and honey-packages. This liability depends upon the kind of glass, its manner of insertion, and the carelessness of the wearer. Some of our friends, little girls among them, have worn the same glass two seasons through. If an accident should break it, it is but the work of a moment to insert another. Better a little trouble this way and have the satisfaction of *unobstructed* vision.

OBJECTION NO. 2.—“TOO MUCH TROUBLE TO KEEP THE GLASS CLEAN.”

My friends, if you expect to enjoy the good things of this life and shy around *trouble*, you will be “weighed in the balance and found wanting;” but let us suffer the “accumulated dirt of ages” to gather upon the glass, and we are not peering through so much *misery* as when trying to exercise a clear vision through a *mosquito-bar*, or Brussels net, if you please.

However, no need of “seeing through a glass darkly,” when it is as easily kept clean as your spectacles.

OBJECTION NO. 3.—“MADE OBSCURE BY THE DAMPNESS OF THE BREATH.”

This is *not so*, even in cool weather, when a five-inch hat-brim is used; but allowing it for argument's sake, how easy and convenient it is to take up a fold of the veil and rub off dampness! Should this, for two or three months in the North, cause us to lay aside, for the remainder of the season, this “blessing to bee-keepers,” as J. B. Mason, of Mechanic Falls, Me., terms the glass veil?

OBJECTION NO. 4.

In this you say, “Beginners can't use them; for if a bee should get inside, the novice would ruin the veil knocking him out.” What a compliment to beginners!

OBJECTION NO. 5.—“GLASS, BEING SO HEAVY, JOSTLES ABOUT SO AS TO BOTHER ONE.”

We guarantee our contrivance not to “jostle;” veil complete, glass 4×6 in., weighs 2¾ oz.

We unhesitatingly affirm, that a practical glass veil is a nearer approach to a God-send to bee-keepers (and all should use veils when so comfortable under them) than all your pollen theories, hibernating theories, non-separator appliances, two-story brood-fixin's, etc. Why? Because thereby are preserved those precious organs of the body, the eyes.

Now, dear *mine fraternally*, in conclusion, let me say that, if you want to buy a veil from us, all right; but our improvements are not patented, nor will they be, contrary to the wish of our friends; and by sending to us we will either tell you where you can get the material we use, or furnish it to you at a slight advance on cost, and you make your own veil; but under no circumstances use window glass, or you will be forever disgusted with the idea.

St. Albans, W. Va.

J. C. CAPEHART.

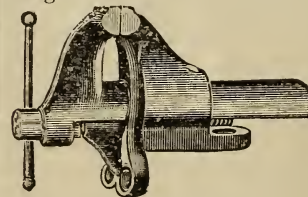
Thanks, friend C.; but I don't quite see how you answer all the objections which you

quote. Discarding glass from windows and shipping-cases because it will break when used in bee-veils doesn't necessarily follow. There is no possible substitute for glass in windows; as for shipping-cases, the very fact that the glass will break is a security against damage to the honey which it incloses, when handled by expressmen. Again, at the heading of the article you put “mosquito-bar veil versus the glass front.” Against the former you seem to direct your arguments, and I think we shall pretty much agree with you there; but when you include a veil made of grenadine and Brussels netting, then I can't quite agree. I have used a veil of this kind six or seven different seasons in the apiary. I never had any difficulty in seeing, and do not know of any one who has injured his eyes by their use—I mean a veil with a front of a fine grade of *silk* Brussels netting. I have used several glass-front veils, and they all became more or less covered with steam from the breath, and half the time the glass *would* get out of place, so that one eye peered through the glass and the other through the mosquito-bar, making me feel vexed and cross-eyed. Although the glass may be a trifle clearer than the Brussels netting, yet as the latter never becomes greasy or covered with steam, in the long run the glass will be no easier on the eye. Lastly, the glass veil can not be carried in the pocket handily, and I always like to have a veil tucked away like a pocket-handkerchief for emergency, even if I do not use them now to any great extent. Nature's substitute, a full beard, does very nicely, besides catching the little rascal of a bee where his annoyance can speedily be put to an end. ERNEST.

HANDY TOOL FOR A SMALL AMOUNT OF MONEY.

A BENCH-VISE FOR ONLY 15 CENTS.

GR^{EAT} improvements have been made, not only in the *construction* of bench-vises, but also in the *prices*. A few years ago, no sort of a vise could be bought for less than a dollar or two. Finally some enterprising hardware men got one up that could be sold for 75 cts., and it had a large sale; and a little later a 50-cent vise was put on the market, and then one for 20 cts., which we advertised about a year ago. And now we take pleasure in showing you a very handy little vise for the almost insignificant sum of 15 cts.



OUR 15-CENT BENCH-VISE.

It is true, the machine is small, the jaws being only one inch wide, and the entire vise 3 inches long; but yet it is extremely handy for a great variety of work, just because it is small. The workmanship is surprising for so small a price. Prices are as follows:

One. 15 cts.; 10, \$1.40; 100, \$13.50. If wanted by mail, add 6 cts. each for postage.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from April 15.

CHAPTER XV:

A PLANT-GARDEN.

Whatsoever he doeth shall prosper.—PSALM 1:3.

That is a pretty broad promise, dear friends, is it not? I do not know that the Psalmist meant to say that we should never have any bad luck, nor make any failures; but he meant that the man who is studying God's law day and night, and who delights to obey that law, would, as a rule, meet with success and prosperity. It is in the same line with the text that says, "All things work together for good to them that love God." Now, then, if I should tell you that your operations in gardening and poultry-raising would all prosper if you follow my teachings, it would be a pretty strong statement. Well, I do not intend to make such a statement; but I do mean to emphasize the promises in the Bible, each and all of them; and if, while your work is carried on, you are lifting your heart continually in love and praise to God, and working diligently meanwhile, you will surely meet with prosperity. You may have sickness and death, and tornadoes and whirlwinds, but there will be enough besides these to give you a thankful heart through all life's duties. Love is the mainspring of success in any thing. If you want to see plants grow, you must love them in the truest sense of the word; and if you want to see poultry do its level best, you must love the poultry, and love God through them, because they are his creation and his gifts.

It is now May, and we must move out of the greenhouse, out of the cold frames, and, in most localities, set aside the sash and other means of protection from the frost, and move out into the open field. Hand-work must, in a great measure, be laid aside for the cheaper and more economical labor of horses. But before stepping at once out into the open fields covering acres, we want to consider a sort of intermediate plan of gardening, as it were. This garden is to be an open field, only it is to be worked by hand, horses seldom if ever going into it at all, the ground being worked over by the use of the spade or spading-fork. Now, spading ground is very expensive compared with turning it over with a plow, and therefore we want the ground very rich, very soft, and friable. We want it so it will spade up and

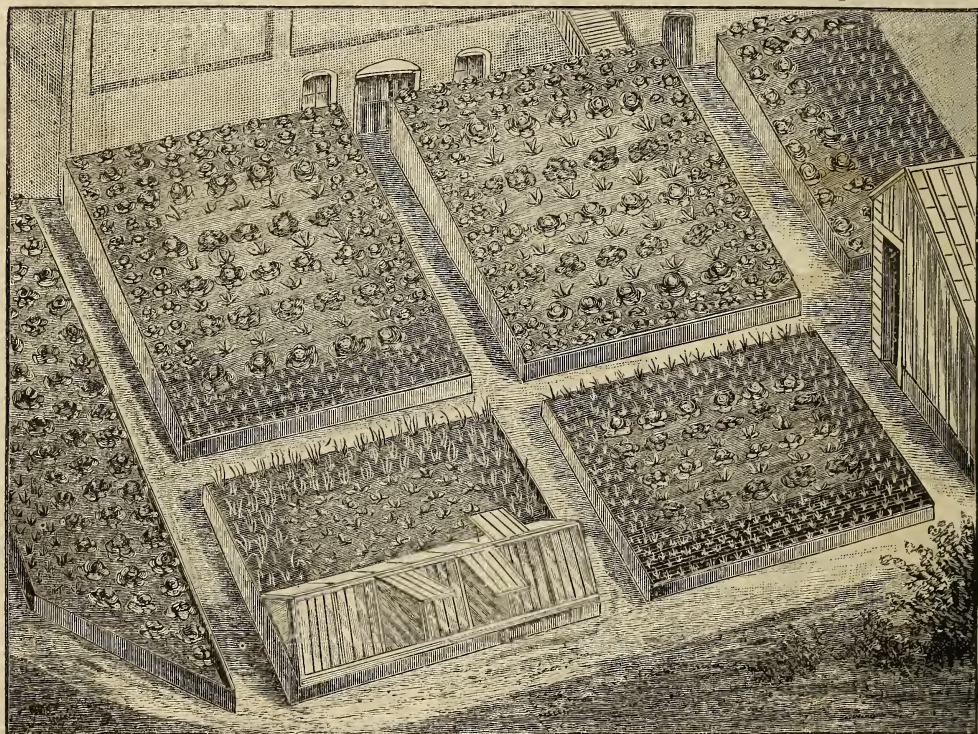
tumble down fine about as easily as you would spade up the peat in a peat-swamp. We want an admixture of sand and clay, however, to make it heavier than peat, for we can not well have it work quite as easily as peat. This plan of gardening is for cabbage-plants, tomato-plants, lettuce-plants, celery-plants, and all other plants that are called for, besides early lettuce to come first into market, a few extra-early cabbages, a few hills of cucumbers, to be forwarded by means of hand-glasses, to be described further on; early cauliflowers, beets, and onions, and, in fact, a little of almost every thing that you have learned by experience will bring a big price, or a price big enough to warrant more expensive hand-work in order to get it first into market.

This plant-garden may occupy from one-sixteenth to one-fourth of an acre, according to your market and requirements. It should be protected from winds by buildings, or tall tight fences on all sides but the south; then it should be most perfectly underdrained, or, better still, fixed on the plan of the new agriculture, as I have described in Chapters V., VI., VII. The ground should be manured to a depth of two feet, or three feet if you can manage it. It should then be worked up so light and fine that, when you step on it, your foot will sink in the soft earth; and when you get it just right you should put some long boards between the rows of plants to walk on, to prevent tramping the soil down hard while cultivating or gathering the crop. You can easily tell when the soil is in such a condition that it will be injured by walking on it. The amount of rain has something to do with it. Then, as soon as you can, if you are not near a town or city where water-works are accessible, you should have a tank, with rubber hose attached, to water your plants, or whatever else is in danger of suffering from want of moisture. As a rule, water is seldom if ever needed to bring forward the crops where the ground is in proper order, and sufficiently rich with manure. But there are times when it is desirable to set out plants, even during a spell of dry weather. In such a case we want to take our rubber hose and saturate the ground

thoroughly where the plants are standing, as well as the ground where they are to be put out. If you have facilities for doing this, you can transplant right in the midst of a dry time in August, without losing a plant or stopping their growth. Having a hose so that you can flood or sprinkle every foot of your plant-garden when it is needed, is a great advantage. If you get water from the public water-works, you can usually buy it at so much per 1000 cubic feet. If you have an elevated cistern in or on the upper part of a building adjoining your plant-garden, you can catch sufficient rain water so it will not cost you any thing, and this, perhaps, is the cheaper plan.

into the garden is an excellent plan. To manage this nicely, your dwelling should be on the south side of a road running east and west. Our factory is thus located, and this gives us a nice shady place to keep plants in view of passers-by, on the sidewalk, on the north side of the building. Boxes of freshly transplanted plants are thus in the shade until they get well rooted.

At the right of the picture you will get a glimpse of the greenhouse, shown on page 142; and at the left, in the foreground, a view of the cold frame, shown on page 139. The plan of the beds is about as it appears in reality, only the artist has greatly enlarged the pictures of the cabbages, lettuce,



A ROUGH SKETCH, OR A SORT OF BIRDSEYE VIEW, OF OUR PLANT-GARDEN.

A wind-mill pump, to draw water from a well, answers nicely, providing you can get plenty of water without going too deep. I should prefer the rain water, could I have my choice. This plan of garden ought to be located near a public road, so that you may get the plants cheaply and quickly when somebody calls for, say, only 5 cents' worth. It should be located near the dwelling-house, or near your shop or office, so that, no matter when somebody calls for the plants, some one of the household or establishment may be in readiness to wait on the customer at once. Having the back door open directly

beets, etc. Three feet of each bed, next to the path, is occupied by plants of celery, cabbage, lettuce, etc., ready to sell to customers. The pair of stairs, of which you get a glimpse near the upper right-hand corner, leads to the store belonging to our factory, making it very convenient for any of the clerks in the store to go out and get plants whenever they are ordered. The operation is briefly like this: A hose is attached to the water-works near the greenhouse door. This permits it to be used inside of the greenhouse, or in any part of the plant-garden. When a customer wants

plants, the clerk catches up a paper bag large enough to hold the quantity asked for. He then goes out, catches up the hose, turns the nozzle so as to spray the bed where he wishes to pull plants. If we are selling them right along, as we are at this date, the ground is kept pretty well saturated, and this is just what suits celery. Enough peat is intermingled with the soil forming the bed of the plants, so that, when the plants are pulled, their bushy and fibrous roots bring along peat enough to dampen them just about right, when they are put into the paper bag, and then handed to our customer.

The plant-garden is a very attractive place, because it is such a novelty to our town to see plants growing so luxuriantly, and so much in advance of the season. Underneath these plant-beds are reservoirs, described on page 58; and it is presumed that the cabbages and lettuce have already sent their roots down into the water of these reservoirs. Whenever we have sufficient rain to leach through the beds, the leachings of the manure go into these reservoirs, and remain until wanted by the plants. The cabbages you see in the cut now measure two feet across. They are of the "Jersey Wakefield" variety that never grow very large, so we are expecting some rousing heads before many days. Some of the heads of lettuce weigh $1\frac{1}{2}$ lbs., and measure 13 inches across. We get 15 cts. apiece for them on our market-wagon. We have been selling radishes for several weeks, raised on this plant-garden, and beets are large enough to go on to the wagon now. An acre of such ground, planted to cabbages, would, without question, raise a crop that would sell for \$1000. Of course, it would cost something to construct the reservoirs, and buy manure; but I think it would pay near a good market for early cabbages in June.

The borders of the beds were mostly made in February, by driving down stakes and nailing on top of the stakes 2 x 4 scantling. Around the larger beds we nailed drop siding on top of the stakes, and had it afterward painted, to make it look tidy. The smaller beds were made in the same way, using any rough refuse boards to be found around the premises. Raising the beds from the ground makes it convenient to handle plants as well as to do the necessary work. The tender plants were covered with sash in February, but we hardened them gradually so that the sash was used very little during the month of March.

TRANSPLANTING.

One great secret of working this plant-garden is to understand transplanting so as to do it surely and safely. The plants are taken from the seed-boxes in the greenhouse, and transplanted into the soil of these raised beds by means of the transplanting-frame shown on page 136. It is a good deal more difficult to transplant in the open air than to transplant in the boxes kept all the time in the greenhouse. Drying winds are very trying to tender plants just put out. If these drying winds are accompanied by a scorching sun, you will find the labor of several days all gone to naught before you know it. As a remedy for this, they should be shaded for a few days, after being put into the open ground, with light shutters made the same size as your 3 x 6 sash; that is, these shutters, or shades, should be used when you see the plants are suffering from the scorching sun and drying winds. The shutters had better be removed at night, whenever dew falls, or on cloudy days.

Something answering still better than the shutters is a shading-frame made of lath, the lath being half an inch apart. This protects the tender plants from the wind, and enables them to get some sunshine; but as the shadow is always moving, they get alternate sunshine and shade, which seems to suit them much better. It is especially important that celery-plants have this partial shading. When some of our beds looked as if the celery-plants were pretty nearly all dead, ten days' covering with these frames brought them up to full vigor.

This plant-garden should be manured with the very best old rotted stable manure, and manured heavily. On one little bed, 6 feet by 20, we shall get, for a single crop of lettuce, perhaps \$10.00. Two good loads of manure were put on to give this crop, which were worth perhaps \$2.00. The manure was thoroughly forked in, so that we have nearly or quite two feet of soil that will give an immense crop at almost any season of the year. Now after having put so much expense on a little piece of ground, this piece of ground must be kept constantly cropped; yes, winter as well as summer. As soon as the lettuce is off, put in beets, radishes, or plants, and keep it going; and along in the fall fill it with cold-frame cabbage-plants, and keep it doing something right through the winter. Some of the papers are inclined of late to call plants raised very early in the spring about as good as the cold-frame plants; but I tell you, friends, they are nothing like

hem. Our cold-frame cabbage-plants that have stood heavy freezes over and over again will stand drought, insects, and almost any thing else, in a way that plants not so hardened can not do. The same is true of lettuce-plants. The hardened cold-frame lettuce-plants are ready to boom when plants taken out of the greenhouse would shrivel

up and die. It is true, plants may be taken out of the greenhouse, and hardened off in cold frames, say in February; but we think it a good deal less trouble to get good strong stocky plants in the fall, and keep them so all winter. Now, then, let us remember that this plant-garden is to be made to work every week in the year.

CHAPTER XVI.

Whatsoever a man soweth, that shall he also reap.—GAL. 6:7.

We are now ready to consider the growing of crops on a larger scale than heretofore; and as these papers are written mainly for those of but limited means, as I have remarked before, they may not, perhaps, apply to all of you, although the general principles are the same, whether you work on a large scale or a small scale. Many who are out of employment have no ground of their own, not even a little patch big enough for a plant-garden; but it seems to me one of the first things I would aim at, if I were so situated, would be to get a little piece of ground of my own. I would cut off some of the luxuries in the way of food and clothing, in order to save enough to buy a little piece of ground. And now I hope you will not think I am striking off suddenly into a piece of eccentricity when I say that this piece of ground should be in the form of a *long strip*. It is true, it takes more material to make a fence to inclose a long strip of land than it does to inclose a square lot; but for all that, we want the long strip. If you can get a piece of ground for a plant and vegetable garden half a mile long, you are a lucky fellow: if you can make it a mile, you are still more lucky. Do you want to know why? Well, read the following extract from Landreth's price list:

IMPORTANCE OF HAVING YOUR GARDEN LAID OUT IN LONG ROWS.

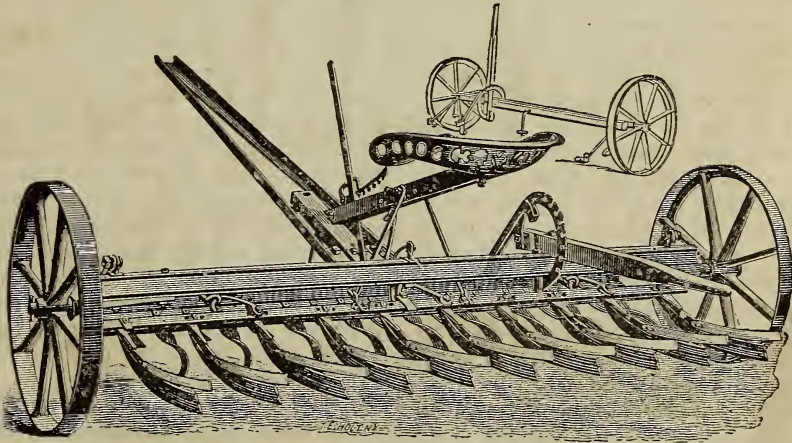
The old style of gardening, laid out in squares, to be dug and cultivated exclusively by hand, is becoming a thing of the past. The vegetable-garden is now laid out in parallel rows, or drills, ranging from two to three feet apart, and the cultivation of the greater part is done by horse power, as has been so frequently taught. The site should be the best obtainable with reference to the soil, exposures, and topographical features; the area should be large, and every thing done upon liberal and practical principles; the seeds should be all sown in drills, or rows, so as to be adapted to horse culture. Hand labor is the dearest of all, and should

be avoided. The land, if circumstances will permit, should not be of a less length than 75 yards, and may with advantage be extended to 200, according to the quantity of vegetables required. Long lands, where animal power is used, are much to be preferred to short fields, as much time is saved in turning; for example, a plow team in a journey of eight hours, plowing land 78 yards long, will spend 4 hours and 39 minutes on the head lands; if the furrows were 274 yards long, the time spent in turning would be but one hour and nineteen minutes. The tillage of the garden should be the most approved labor-saving implements, wheel-hoes for hand use, scarifiers and cultivators for the horse. The seed should be sown with hand-drills, and fertilizers of the guano class applied with a similar apparatus, and, without interfering with the labor of the farm, be made to yield vegetables in profusion, when, if the spade and hoe are relied on, they are produced in stinted quantities. The amateur gardener, and expert as well, should make out a list of the varieties of vegetables he desires to have, and then lay off on paper a diagram of his garden, assigning certain rows to each sort.

Just think of it, friends! Four and a half hours out of eight may be spent by an expensive man and team in simply turning around his horses; whereas, by a little different management, these four hours and more of the hardest and most fatiguing part of the work may be reduced to one hour and nineteen minutes! Do you know why everybody hates to plow a garden? It is because there is so much turning around to be done. This turning around is so trying to the teamster that he loses his temper, and calls his horses "fools" or worse names. The horses doubtless lose their temper because they can not see any reason for so much pulling and hawing about; being called fools and idiots because they do not understand nor comprehend, and like phrases. I once heard a man complaining that there was not a teamster in Medina who would plow a garden for less than \$1.50,

He thought the price was next door to swindling. Well, I presume the teamster did not want jobs of plowing village gardens, even at that price. Terry takes up this matter with great vehemence in a chapter or two of his Potato-book; and this little book has been the means of making a reform in this very matter. The objection to plowing land in long strips has been urged, that many farmers want to plow their land in one direction one year, and at right angles to it the next year, to keep the ground level. Well, if this must be done I would have my fields half a mile square—if I could. I have sometimes thought I should like a field so long that I could start down one row after breakfast and get back on another just about

easier for the team to make half a turn than to make a complete turn clear around; and when horses are tired I can see from their very looks and actions how they dread being pulled right squarely about while some awkward piece of machinery has to be pulled and hauled around also. Within the last few days we have had a pair of wheels put on our Acme harrow, so that, whenever we have to turn abruptly, we can, by means of a lever, raise the knives clear out of the dirt, so it turns as easily as a cart; and I tell you it is a relief to me, I am sure, and a relief to the horses. This Acme harrow on wheels, or with a sulky attachment, as it is sometimes called, pleases us so much that I will give an engraving of it.



ACME HARROW WITH SULKY ATTACHMENT.

dinner-time. The horses would have to turn around but once in the forenoon. I do not know but I could afford to stop and get a drink of water, and give the horses some, at this one turning; and if I turned near a public road, and a neighbor should come along, it might not be out of place to chat with him, say five or ten minutes before I started on the back track. On our ten acres here at the Home of the Honey-Bees I have been greatly tried and vexed because so many of the men I hire would want to stop and visit every time they came to a place to turn around—especially if that turn-around happened to be near a public road. I do not like turning around, any way you can fix it. It is vexatious and trying to the horses as well as to the driver, and it is a shameful waste of time. We almost always plow around our piece of ground, and harrow around it, in order to avoid, as much as possible, turning squarely about. It is much

The wheels can be attached to any Acme harrow already in use. I prefer the Acme harrow to any other I have ever used, because of the cutting motion of the knives, which chop every thing up, but never catch and break the machine, or jerk the horses unmercifully. You can run it over roots or stones or brush, long manure or corn-stalks, and it cuts them to pieces like taking a long butcher-knife and slashing it repeatedly across the article to be worked up fine. You will see these knives will run over soddy ground, and work it up fine without turning up the sods or turning them over. It simply cuts them in pieces, and lets them lie where they are. By means of the lever right before the driver, the knives are instantly pulled clear off from the ground, so that you need not cut up the soil when you don't want to. By moving the lever either way you raise the *wheels* clear off the ground, thus putting all the weight on to the knives,

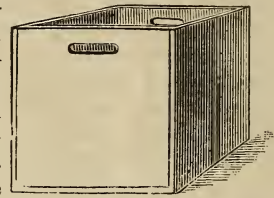
as to make them go down deep. By repeated harrowing you can get the soil so fine and soft that the knives run in the dirt clear out of sight, moving it about, reminding one of water behind a propeller-wheel. While we are on this matter of turning around with a team, I want to speak of something akin to it. It is what an old friend of mine calls

"TURNING-AROUND GROUND."

This turning-around ground is a space of twelve feet, without any thing being planted on it at all, at the end of every piece of ground. He claims that it takes 12 feet to turn about the horses and cultivator, and that it is economy to plant nothing on this twelve-foot strip. In fact, he recommends that every market gardener have a road twelve feet wide clear around his whole farm; and this road, at the ends of the rows, is to be used for the turning-around business. It lets the cultivator go clear up, or pretty nearly up, to the last plant, and it lets the horses turn about and start in the next row without stepping on any thing. I do hate to see nice crops trampled down by horses. Well, I have carried this doctrine of the turning-around ground a little further by plowing our land so as to throw the rich vegetable mold from this twelve feet right over on to cultivated ground. At one place, where the ground was remarkably rich, I had it shoveled off clear down to the yellow clay, and over on to the land adjoining, giving me 15 or 16 inches of rich vegetable mold, instead of 7 or 8 inches.

Now, then, if you have got your long strip of land planned for big crops, let us carry out some principles on it we had in our greenhouse beds and our plant-garden. Make the ground clean, level, and free from stumps or stones or trees. Shade-trees are nice in their place, but we don't want them on ground that has been manured up to the standard for market-garden stuff. The trees must go or the vegetable-garden must go. Neither can we have stones in the way to bump the plow and cultivator, and rasp one's feelings when he is tired, and disposed to be cross. I would pick up every stone the size of a hen's egg, or larger. By the way, when I was a small boy I used to think that picking up the stones off from a field was the driest, dullest, and most monotonous work I ever endured. Do you think it is any thing very wonderful if I find that the small boys and small girls who come to me and want work feel the same way now, about picking up stones, roots, etc., scattered over our

grounds? Perhaps not; but somehow or other I enjoy this work so much now that I just feel happy to go out with the children and pick up stones. Yes, I feel happy to go out and pick up stones alone, because I feel that every pebble got rid of from my ground makes it just a little bit nearer to perfection. I have figured a good deal in regard to picking up stones. Last year we used Terry's potato-boxes, such as are figured in the adjoining cut.



TERRY'S POTATO-BOX.

I would tell the small boys and girls who were asking for a job, to carry a lot of these potato-boxes out into the field, scatter them where they would be handy, then fill them with stones, or, at least, put in all the stones that were very near the boxes. Then a man with a stoneboat went around and lifted the boxes on to the stoneboat so he could draw them where they were wanted. Do you ask where the stones were wanted? Why, you will find the place by turning to page 58. The way we gather stones now is when we are rolling the ground. We have an iron roller drawn by two horses, with a stout plank box on top, made with sloping sides. A man drives the horses, and three or four children follow along to pick up the stones and pitch them on to this plank box. The box is ironed strong enough so the heaviest stones they can lift won't hurt it. Some way the children seem to enjoy it better to work along with a man and a team. When the roller-box gets full we drive to a reservoir left open on purpose to take the stones, and the children have the fun of pitching them into the water. We have just been clearing the field of stones, down across the creek. There is no place handy to put them, but I remembered a hole where water stood most of the year. I had one of the boys dig the black mud out of the bottom of this hole, and throw it up around the sides. Then we put all the stones they could find into the hole and covered it, according to the plan of the new agriculture, with flat stones and tinware, and then raked the black mud and dirt that was shoveled out, back over the stones, and we now have level ground on which to raise crops with the new agriculture underneath it. Almost every piece of ground has low places enough to take up all of the stones, and the work is not very hard nor very expensive either. If

those who do it enter into the spirit of getting rid of the stones, filling up holes and getting the rich decayed leaves usually found in such sinkholes upon the surface, they won't consider it very hard work. Some of our boys thought it was a little hard to go down into this nasty mud, but I furnished them a pair of rubber boots at my own expense, and we don't find it disagreeable, unless it is the nasty smell that arises when such places are shoveled out. I rather like the smell, because it reminds me that valuable fertilizing material is stowed away there.

While speaking of the roller, I might remark that we consider the tool a very valuable one when used judiciously. It should never be run over plowed ground, however, unless the soil is so dry that it packs it no more than to mash up all the lumps, and level the surface. To get ground real nice for setting out plants, or for almost any other purpose, we go over it with the roller and Acme harrow alternately. Roll it twice and harrow it twice, and your ground ought to be in beautiful order for sowing the seed.

By the way, perhaps you would like to know how I like to see the ground prepared for sowing seed or for setting out plants. But before describing my plan I want to say that you will have to be governed a good deal by circumstances—the implements at command, the size of your land, etc. Ground that has been plowed the year before, as soon as it is dry enough, we go over with the Acme harrow, then roll it until it looks as if it might do very well for sowing the seed. Well, when the ground is soft and fine and nice on the surface, we go over it with the manure-spreader, and spread twenty loads to the acre, of the best manure we can find; then the Acme harrow goes over it again, and stirs the manure well up with the surface soil, until the ground is fine again. It is now ready to be plowed.

In regard to plowing the ground, I suppose almost any old farmer can tell you more about that than I can, if you do not know it already. We want to do a nice job at every step, and we want nice plowing to begin with. After it is plowed nicely, go over the same operations again; *i.e.*, harrowing it with the Acme harrow, rolling it, picking off the stones, harrowing it again, another putting-on of manure with the manure-spreader, another thorough harrowing; then, if the ground is dry enough, finish with the roller, and you are ready for putting in the crop. I have practiced subsoil plowing to some

extent, but so far I have not seen any very great advantage resulting therefrom.

The entire difference between loss on the one hand and gain on the other, may depend on a little management. During these beautiful growing days in the month of May it is of the utmost importance that your work move right along without any hitches or breaks. If you are going to succeed, you can not go visiting very much, nor attend picnics or excursions. If you are going to be guided by me, you must get your happiness from your work. Your mind should be keeping pace with your body. Plan all your work the night beforehand, so as to be ready to take right hold as soon as you wake up in the morning. When you get through using one machine, have your mind fully made up what one is to come next. Decide whether the whippetrees, neckyoke, and clevises are all where you want them. Don't go off across the farm to hitch on to a tool, and find you have forgotten the doubletrees, and then have to go back after them. I have known men who would get the doubletrees, and then would go back again to get the neckyoke. If you work in that way you will surely fail.

Another thing, doubletrees and whippetrees frequently break. I do not know that it is practicable to make them so they won't break. It might be done, it is true; but you would have to have them so heavy that you would probably lose in another way in the end. But, be sure of this: That there are surplus whippetrees ready to be put on at a moment's notice. I would also have surplus bolts and burs nicely put away in the tool-house, or wherever your tools are kept. Have oil-cans, and tallow also, in readiness, to keep all your tools in good working order. Be sure that wrenches, suitable for the work they are to do, be in readiness near by, and make it your business, sleeping or waking, to be ready to push ahead in spite of accident and emergency.

When the weather is fine, decide exactly what you are going to do the moment it rains; or, if you keep a hired man, have work saved up in readiness for him during a rainy day. Do not, under any circumstances, let him do work during beautiful weather that can just as well be put off until a rainy day. Hired men will do these things unless you keep a careful watch on them. Neither will it answer for you to set a big strong man at something that a woman or child could do equally well. The

brisk competition that is now kept up in all kinds of business is such that you will surely fail if you are guilty of this kind of folly. There may be circumstances, it is true, to justify doing differently from what I have just intimated; but bend your whole energies to the work of deciding how you can accomplish most with the least expense. Do not put great stout horses on work that can be just as well accomplished with one horse, and a light one at that; and don't set a great stout man at something that a child can do better and quicker. Children enjoy work if their work is planned wisely for them; and they are far happier when doing good somewhere, than if left to their own devices.

Perhaps you object to all this fuss to get your ground ready for a crop. Well, it is true you can go along and put in your seed after the usual plan, and raise a crop; but, my friend, if you are going to raise a crop that will bring you \$1000 for the proceeds of a single acre, you have got to put labor and capital on that crop. To-day our market-wagon is selling heads of Boston market lettuce at the rate of forty or fifty a day in our small town of only about 2000 inhabitants. The largest heads bring from 10 to 15 cts. This morning I myself cut two heads that weighed 14 lbs. each. Now, we have never been in the habit of using very much lettuce at our house. My wife has often objected, because it was so much trouble, especially when I brought in a lot of lettuce just before breakfast was ready. Since we have got to having single heads that weigh a pound, however, she says the case is entirely different, for all she has to do is to strip off a few of the outside leaves, and the interior of the head is cleaner and nicer than any washing can make it. It is no trouble at all to fit it for the table, and I can assure you it is no trouble to dispose of it after it is on the table. The secret of getting these large, beautiful, crisp, delicious heads of lettuce is, however, fine tilth and lots of manure. Such heads of lettuce can be easily raised for the market so as to be ready every day in the year; and I imagine it would be a pretty hard matter to overstock almost any market. Here is a crop that will bring you money every day in the year, and yet it has almost no insect enemies, and is almost sure if you have your

ground in proper order. Now, what do you suppose an acre of such lettuce will bring? And after you get your ground in trim to raise heads of lettuce that will weigh over a pound, on every square foot of its surface, it will yield an enormous crop of any thing. Just figure up the number of square feet in a mile; cut off one figure, and you have the number of dollars per acre that your stuff ought to sell for. Very likely you urge that no such an amount as an acre will grow or can be sold in a locality. That may be true, and then it may not be true. When you get more than your home market will take, just send samples to the right kind of a man in some large city. As an illustration: We found we had more "Jersey Wakefield" cabbage-plants than would be wanted in Medina. We did not write to the city of Cleveland to see if they wanted any. We simply sent a basketful of plants for their inspection. Here is what the commission house wrote:

The cabbage-plants are rather large, but they were taken readily. We can allow you 30 cts. per 100 for cabbage, and \$1.00 per 100 for tomato. You might send us 500 cabbage-plants next Monday, if prices suit you, and about 200 tomato. But we need Aeme, not Trophy.

A. C. K.

Cleveland, O., May 6, 1886.

A few days after, comes the following:

Please express at once 300 Aeme tomato-plants at \$1.00, and 500 Wakefield cabbage-plants at 50c.

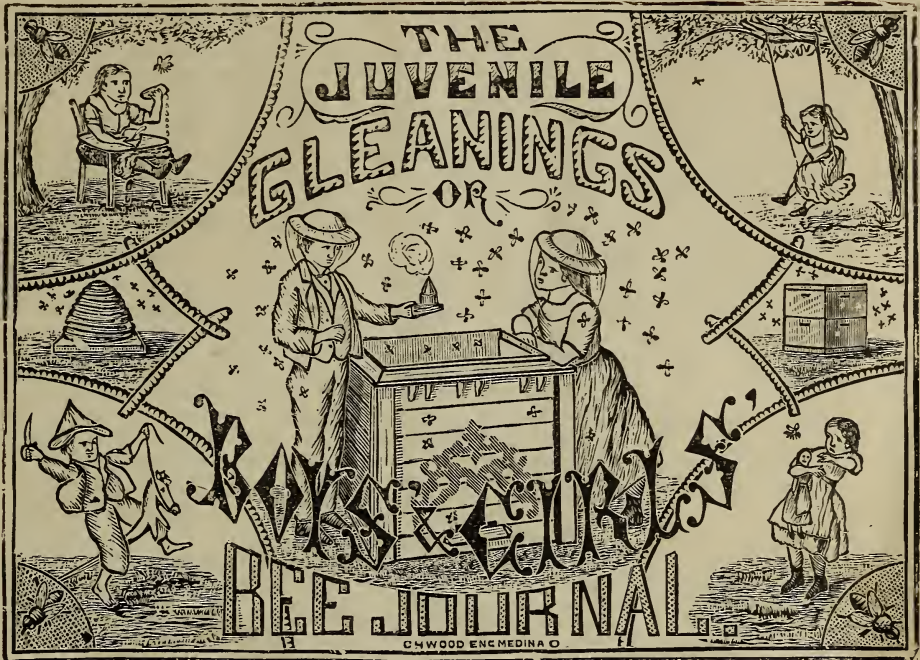
Cleveland, O., May 11, 1886.

A. C. K.

Now, friends, please figure out the profits on an acre of ground devoted to cabbage-plants or tomato-plants, at the above prices. It is true, you will need the aid of a greenhouse, cold frame, or hot-bed, for plant-growing; but these are not difficult to command. Please don't imagine, now, that I advise every one to go to raising lettuce, cabbage-plants, and tomato-plants. That is not the idea at all; but I do recommend that you who are out of employment, spending your time in loafing, or something worse, do get hold of a little piece of ground somewhere near you and make it give up the treasures God has wisely placed within your reach.

We will suppose your ground is underdrained (or, better still, fixed something on the plan of the new agriculture), nicely plowed and harrowed, stones picked off, and every thing ready for the planting of the crop. How shall we put in the seed?

To be continued June 15, 1886.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

Thinketh no evil.—I. COR. 13:5.

WELL, friends, here it is along toward the first of the beautiful month of May. The apple-trees are in bloom, the bees are rejoicing, and the weather is so fine that it seems to me every boy and girl ought to be ashamed of themselves if they can not rejoice also. We have not had a bit of frost for several weeks; in fact, we have 2000 tomato-plants growing nicely out in the field, and some of them are more than a foot high, and covered with blossoms. A great many old heads are shaking wisely, and they tell me I will "catch it." But I am willing to take my chances. If the frost comes I will do the best I can to save my plants; and if I don't succeed, I am going to be happy any way. There are plenty more fine ones in the greenhouse, for a reserve to fall back on.

Well, it seems to me the bee-friends are busy and rejoicing too, for orders are coming in as briskly as we ever saw them before at the Home of the Honey-Bees; and, as a consequence, great numbers of neighbors are all round about me; in fact, for a few days back it has seemed as if it were my great privilege to give work to almost every one who applied; that is, with the usual promise not to drink, swear, nor use tobacco. There are so many of them, that I have some in my employ whom I could not call by name if I should try to. This brings me to what I want to say to you to-day.

Since we have put down the price of foun-

dation, it has made a big boom in what we call the "wax-room." It is almost as full as a schoolroom now, and most of the time it is almost as quiet and orderly as some schoolrooms. The wax-room is mostly in the hands of girls and women. Mr. C., who has charge of it, says he does not believe it is, as a rule, a good plan to have many small boys and small girls together. They get to be so bubbling over full of fun that they can not attend to their work as well as if the boys were kept out, or in a room by themselves. With the older hands it does not make so much difference—that is, when they are old enough to behave themselves like ladies and gentlemen. In that case, I have sometimes thought that it was an excellent plan to have the sexes together. Well, with the rush of business in the wax-room, and the number of hands employed, there are more or less complaints of mistakes, about inferior quality of work, etc. Several times customers have complained that the base of the cells is not thin enough. This is caused by running the machines with the rolls too far apart. The other evening the man who makes foundation-mills told me that there were too many hands turning the adjusting-screws to the rolls. I told him I thought no one ought to touch those screws except the foreman of the wax-room. He said he had spoken to him about it, but that he replied something like this:

"The girls complain that the rolls turn too hard, and then they loosen the adjusting-screws, because that makes the rolls turn

easier." Of course, I was quite vehement about the matter, and I declared if we couldn't find some way to make the girls *obey orders* it would be funny. Next day a piece of foundation came by mail, the letter saying that a ten-pound box we had just sent was all like it, and that he couldn't use it at all, because it was too thick at the bottom. I took the letter and started for the wax-room, with a determination to straighten things up *thoroughly*. When I got down one pair of stairs, something began to say, "Be careful, Mr. Root. Remember what you profess, and bear in mind that the saving of souls is a thousand times more important than having foundation just as it ought to be, even though it is, without question, your duty to be faithful and honest to those who send you their money."

In answer to the above, I thought something like this:

"Yes, this is all true; but this is a serious matter, and one that has come up over and over again, almost every season, and it needs to be straightened up *decidedly*."

The still small voice ventured, as I was going down the second pair of stairs, something like this:

"Well, in any case will it not be better to be *very gentle*, and find out first whether there is not some mistake about it?"

I had been taught by so many, *many* cases similar to the above, that it is *always* safe to be very mild and gentle, that I concluded I would, although I didn't feel like it. I asked the foreman of the room about it, and he laughed a little, but said that at least one of the charges was a mistake. He didn't say that he couldn't *make* the girls stop turning the adjusting-screws. He is a good Christian man, and, seeing by my face that I was disposed to be gentle and kind, he suggested that I should go and talk with the girls about it. Just now I want to confess, that, since my health has been failing, I have not been in the wax-room very much, and perhaps the same is true of a good many other rooms. As soon as I came among them and saw the crowd of anxious faces, many of them being comparatively new to me, I felt ashamed of myself right away. I pleasantly asked them some questions about making the foundation thin; and when I reassured them so they could talk freely, I discovered that they had been having a good deal of trouble and worry just because they could not get foundation to come off the rolls without tearing, and have it as thin as they knew we wanted it. One of them said, "Why, Mr. Root, we have wasted so much time in trying to get the wax to come off without tearing, from this little mill, that we really felt as if we must do something to prevent robbing you by charging for our time when we accomplished nothing. By turning the screws up a very little we could make it come off nicely. See. Don't you call this sheet pretty fair?"

Well, it was "pretty fair," but not quite what many of our customers would like, in the way of a thin base. My informant added: "But, Mr. Root, as soon as we got this last mill" (we had that day been obliged to add still another mill to keep up with orders,

and this last was one of our finest brand-new ones) "we have no trouble in making beautiful foundation. Just see what nice work they are doing with it."

So you see, dear friends, that the trouble was not with the girls at all, and it was not with the foreman; but it came from a mill that sometimes had a way of acting badly. May be you have seen machinery given to such tricks. I replied that they should have the nicest mills that could be made, and plenty of them too, for we could not afford to waste time on anything short of the best.

Now, then, what a sad, sad thing it would have been had I been hasty, and gone in among that anxious little crowd, and scolded and found fault when they were doing the very best they could, and were worried and troubled because they could not do any better. Why, it would have been a cruel, *cruel* thing. And suppose one of them should have felt in her heart (for I am sure she would never have spoken it) "That Mr. Root, who talks so much in the prayer-meeting, and writes such nice things in his bee-journal, is, after all, a cross, hasty, and unreasonable man." As I think of it, I can only say over and over again in my heart, "Thank God, thank God for the promptings of his holy Spirit that bade me be gentle and charitable while I was going down those two flights of stairs." Why, when I look into my own heart, and see the great heaps of uncharitable feelings that lurk there, ready to burst forth, and ready to jump at conclusions upon the slightest pretext—ready to imagine that everybody is evil, and lacking in conscience and truthfulness, it appalls me. May God have mercy on me a sinner; and may his holy name be praised that he has taught me to hold on, and to put a check on these feelings, that they may not come out and do harm; and may his great love so fill my heart that there may be no room for even uncharitable thoughts. May kindness and love toward all humanity, toward the stranger within our gates, as well as those who have known me intimately and well, help me to remember the little text at the head of our chapter, "Thinketh no evil."

FROM JAPAN TO PENNSYLVANIA.

AN INTERESTING LETTER OF THE JOURNEY, BY THE SAME LITTLE GIRL WHO TOLD US OF JAPAN TWO YEARS AGO.

DEAR MR. ROOT:—What do you think has become of your young Japanese (?) friend? or have you given the matter much thought? I had intended to write to you of our expected departure from this "Sunrise kingdom," but on account of being so busy with our preparations for the same I was unable to do so; and when we got here I entered school, which, though quite novel, was equally a busy experience. As we are having a week of vacation at present, I have taken this rainy afternoon to write to my old friends of the adventures I have experienced since leaving Japan last October.

Our voyage, which lasted about 17½ days, was delightful—the last day especially being interesting, on account of the shoals of porpoises which raced with the ship, the groups of whales spouting in the

distance near the coast, the tying fish, sea-serpents, and, most of all, the sight of dear old America, though the first glimpse was of the bare sides of the hills bordering on the coast.

After a few days of visiting at San Francisco we started on our journey across the continent. After we left the great ranches and enormous trees of California, the scenery following was quite uninteresting. The Nevada plains and hills were studded with clumps of sage-bush which soon grew monotonous; but the Great Salt Lake in Utah was interesting, and I thought pretty. The mountains on the opposite side showed signs of breaches quite near the summits.

We noticed some very curious and beautiful cañons, waterfalls, and glens, in the Rockies; but we passed some of the most noted during the night.

I thought Indiana's rolling surface, large groves, and romantic scenery a lovely contrast to the dreary, treeless plains of Nebraska and Kansas; but when we came to Ohio I was charmed, especially with Cleveland, the Forest City, where we spent a short time. I went around the city a little, and saw the great aqueduct, which cost several millions of dollars; and we saw the cemetery where Garfield is buried; and we also saw beautiful Lake Erie.

I wish I could visit you at Medina; but circumstances were such we could not stop, and we came on to the "Knickerbocker" State, with its great farmhouses and whitewashed fences which really struck me first.

I entered school in the beginning of January, and have enjoyed my first school life exceedingly. I am attending a seminary for ladies and gentlemen, which is under the auspices of the church. The teachers are all very pleasant, and we have strictly moral influences. The name is Schuylkill Seminary, and it is at Reading, Berks Co.; next fall, however, it is to be moved to Fredericksburg, Lebanon Co., where mamma expects to settle down.

With kind regards to your family, and best wishes for the prosperity of your magazine and business, I am as ever, sincerely yours, ADA M. KRECKER.

Norristown, Pa., March 23, 1833.

Some of our readers will remember that this same little girl wrote a letter over two years ago in regard to the life and customs of the people in Japan. We also had an engraving made at the time, of a Japanese lady riding in a "palanquin" (see page 127, 1884). We are glad to welcome her back to this country, and hope she is educating herself to go back to a life of service for the Master.

ERNEST.

HOW A LITTLE GIRL STARTED IN BEE-KEEPING, AND SUCCEEDED.

HOW SHE MANAGED 5 SWARMS OF BEES THAT FLEW OUT AT ONE TIME.

FATHER has kept bees for eight years. Three years ago he said if I would take the bees and racks out of one hive, and put them in another hive I could have them, when I got them out. He told me to put them back in the hive I took them out of, for they would not go into the other hive. This hive then was mine. They did not swarm that summer. The next summer they swarmed twice. The last time they swarmed, father and mother were away from home. While they were gone, five stands swarmed. I got two to

alight; two I threw water on, and drove them back, and mine I threw water on. The bees got nearly all out when the queen came out. I ran into the house and got two tablespoons and caught the queen between the two spoons, and the bees went back. That winter one of my stands died. Last summer they swarmed twice. One day last summer there was a swarm came here. Father said if I would hive it I could have it. This I did, and I had four stands then. These made about 80 lbs. of honey. Father got about 3000 lbs., nearly all comb honey. He put 77 stands in the cellar, and they are wintering well. We take GLEANINGS, and mother says she can not get along without it.

GRACE JEWELL, age 14.

Shell Rock, Butler Co., Iowa, Mar. 26, 1886.

Thank you, friend Grace, for your very excellent report. You are the first one, if I am correct, to demonstrate the soundness of Mrs. Harrison's suggestions (see p. 317; i. e., that the children have bees of their own) and report what *they* have done with *their own* capital. I don't think your father regrets at all giving you the swarm, on the condition that you could accomplish a certain thing with them; and now you are able to perform most of the operations in the apiary successfully. I doubt very much whether one of the veteran bee-keepers could have managed those five swarms as well as you did, and your report of how you managed them is certainly interesting. You say that you drove back two swarms with water. Did you use the spray of a force-pump, or did you simply dash water on them with a dipper? I should also like to know how quickly the swarm returned after you gave them a shower-bath. You know it is doubted by some whether throwing water has any effect in inducing the bees to cluster. — Your queen-cage of two spoons is quite novel. It seems to me there would be some danger of killing the queen. However, in your hands no doubt it answered very well. You have done so well that I think you certainly deserve a chromo, and an extra nice one too. I have told the mailing-clerk to send you one. Let us have other reports from the little folks who have bees of their own. ERNEST.

FACTS FROM ACTUAL EXPERIENCE AND OBSERVATION.

FROM OUR YOUNG FRIEND CHARLIE.

FRIEND ROOT:—Bees wintered well here, and are now in fine condition. They began gathering pollen March 18 and 19, but have gathered very little since, on account of so changeable weather. We have been feeding some. We had one weak swarm run out of honey one night, and the next morning I brought a part of them to life by warming them, but they did no good.

One evening, a short time ago, we moved a swarm two miles. When we fixed them up the bees were spread about, all through the hive. After we had got them home, sawed the entrance large, and in other ways badly jarring them, we looked into the hive, and were surprised at finding them drawn up into winter quarters, and any amount of thumping and pounding failed to make a single bee move.

Now, do bees generally act so decent while being moved? Last winter we moved some swarms but one-fourth of a mile, that became badly demoralized. We wintered two large swarms this winter, with entrances only $2\frac{1}{2}$ by $\frac{1}{2}$ inches; and in spite of so little ventilation they came through, losing scarcely any bees. In some hives, upper ventilation right above the cluster was used all winter, without causing any harm.

We have over 40 varieties of honey-plants near us. The mallow, which blooms as late as November, is the latest. It has short leaves, flowers variegated with white and pink, and it produces snow-white pollen. Ironweed produces white pollen, and the bees get covered with a white dust while working on it. Bees do not work on red clover and golden-rod here, as the blossoms of the latter get so destroyed by the old-fashioned potato-bug, or, may be, because the bees do not notice it. Hawthorn, four kinds of smartweed, and several species of autumn flowers resembling sunflowers, are good honey-plants.

It is queer indeed how bees find out honey so quickly. One day last spring the cellar-doors were left open. Some honey was down cellar. I was near by at work, and I did not see a bee anywhere about. Presently I left, but was back shortly after. The cellar was just swarming with bees. I closed the doors, and the bees came out of the cracks. This started robbing. I find that bees are more apt to fight on damp cloudy days than on bright warm ones. On autumn mornings they often all mix up in a big fight, but quiet down when it gets warm enough for all to go to work in the fields.

Fall before last a great many bee-trees were cut down. One was said to contain 200 lbs. of honey. Last fall, not one was cut down.

The morning of June 27, 1885, was a bright one; but at 10 A. M. it began raining, and rained until 3 o'clock. The clouds then broke away, and the bees went to work. One swarm I noticed was unusually quiet. On looking into it, it was found quiet inside also. Presently they began rushing about, and so they were shut up. Then they began swarming. When they clustered the limb was sawed off and taken to the new hive. While doing so a small bunch dropped off. When the swarm was hived we looked and saw that the bunch that had dropped off had risen up and clustered on the tree close to where the swarm had clustered. Part of them were brushed off and carried to the hive, and the rest were shaken off. These then struck directly for the new hive, which was not over a rod distant. Now, this, although a first swarm, came out at 4 P. M., two hours past the usual swarming time. It may be likely that they prepared to swarm in the morning, and as the rain stopped them they had to wait until it was over, which made them quite late.

One sunny day last winter, when it stood only 23° in the shade, I placed the thermometer on the south side of a hive. It soon ran up to 83° , so it was 60° warmer on the south side of the hive than in the shade. CHARLIE L. GREENFIELD, age 14.

Somerville, Butler Co., Ohio, Apr. 5, 1886.

Very good, friend Charlie. Your thermometer was placed in the sun, and that is why it recorded such a difference in temperature. In taking such observations, the sun should never be allowed to shine directly on the thermometer, especially on the bulb.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I, and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

WHAT TO DO, AND HOW TO BE HAPPY; A SEQUEL FOR THE WEE FOLKS.

LATTER, clatter, whackity bang, tick, tack, click, clack—"What's all that racket this time of the day?" exclaimed I. The heavy machinery had all stopped for the night, and I was sitting at my desk, with pen in hand, prepared to write something *real nice* for the little folks. Racky tack, tick tack, cracky cracky whack! This only I received in response to my question. "What in the world is all that racket?" I thought. "I wonder"—racky tack, ticky tack, ker squash—"oh! I know; it is one of the clerks who has been working late hours to fill orders, and in his blundering haste has tumbled a pile of goods all over himself and on to the floor. How clumsy some folks are!"

There, there! in my uncharitableness I have just lost a *splendid* thought, and I can't recall—racky tack, tick tack. Half disappointed at the loss of a brilliant thought that wouldn't come back, and half bewildered at such an unseasonable din, I was on the point of saying, "Ma, make the children stop that incessant noise; I can't write, nor hear myself think," when I remembered that I was married now, and that I wasn't over home, nor was Blue Eyes, Caddie, or Huber, anywhere around to bother me as in days just gone by. "Ma, make them stop" has become almost a part of my nature, and it crops out once in a while now. Racky tack, tick tack. "Oh dear me! what shall I do? In this noise I can't think of any thing, and 'Barney' is calling for the 'Introduction to the juveniles.'" The noise seemed to grow louder. Half curious, half out of patience, I arose from my seat and sallied forth into the compositors' room, then through the long hall, and at last halted in the clerks' office. All was quiet, save that

"racky tack." Following the sound of the noise I passed into the paper-room and book-binery. I then sauntered into the sample-room. What do you think I saw? There were Hiram, Franky, Minnie—yes, and Ella too. Sitting at a table, each one had a mallet, and something to do. Sections, heaps of 'em, were they driving up square. Tick tack, click, clack, *that* was the noise everywhere. "What to do and how to be happy" seemed to be fully exemplified upon their bright happy faces, and I didn't feel a bit mad when I saw how rapidly and how nicely, too, they were folding together those one-piece sections we manufacture. It seems these children had seen what pretty work it was, and they had teased their mother, who has charge of the room, to let them do it too. As she was somewhat behind in her work, she consented to let them try; and when I saw them I was fully convinced that they were the best automatic section-formers I ever saw. Little 7-year-old Ella was keeping up with the older ones. How fast do you think she could fold them? We kept track, and found that she could fold a whole box of 500 sections in just about two hours. From the looks of her bright face I don't think she ever had any play that she enjoyed better. The question of "what to do and how to be happy" seemed to be fully solved for her. Now, I was wondering if other little folks couldn't do it too. I imagine that your papa, if he is a bee-keeper, has lots of sections he wants folded, and perhaps he has got a bright boy or girl who wants a job, and a chance to earn money. We pay 3 cts. per 100 for putting up sections in our factory. At this rate little Ella earned 15 cts. for the two hours she worked, or at the rate of 7½ cts. per hour. I think that is doing pretty well for a 7-year-old chick. Of course, she would get tired if she folded more than one box at a time.

Now, I do not know of any thing you can do at present that will help your father more for the coming flow of honey. I should like to have reports from the little folks, telling how fast you can put together sections. If you will do real well I will send you any thing you may choose from the 10-cent counter.

ERNEST.

A PETRIFIED WASP'S-NEST.

My father has a petrified wasp's nest. It is about as big around as my fist. The cells are mostly filled up, and some of them are raised, while others are slightly broken. It looks a good deal like a honey-comb. He has also some with fern leaves on them. They are very pretty. CARRIE MELICK, age 10.

Waverly, Neb., March 20, 1886.

Now, Carrie, are you sure it is a petrified wasp's nest? From your description I am inclined to think it is the work of some insects like the coral insect. Something in regard to this has already appeared in our back volumes.

AN OLD FOGY.

I read all the little letters and your foot-notes. Ma says that honey and croton oil (equal parts mixed), given every two hours in teaspoonful doses is the best remedy for the dysentery that she ever saw. She also has a dropsy recipe which takes a

quart of honey to make it. We have a neighbor who claims to be an old bee-keeper. He says if he had a mind he could make all the neighbors' bees come to him and stay. Do you think such a thing possible? If so, is he not an enemy to bee-keepers near by, if he is not honest?

TOMMY BROWN.

Searey, White Co., Ark., Mar. 1, 1886.

Don't be alarmed, friend Tommy; that neighbor you mention has probably got a few old-fogy ideas in his head, one of which is that he could call all his neighbors' bees to himself. He might induce them to call on him for a short time by setting out syrup, or starting a cider-mill, but the bees, after they had feasted themselves at his expense, and had pestered him all they could, would return home without so much as saying, "Thank you." Nothing so much annoys me as to hear one of these old seers boast of the big things he can do.

ERNEST.

THE NAUGHTY SABBATH-BREAKERS.

I wrote just one year ago, and told you about pa's bees commencing to carry in pollen on Sunday, the 1st of Feb. Now, these Sabbath-breakers commenced at work this year on buds of water-elm, on Sunday, the 31st day of January; so with all of our example and teaching we have failed to teach them better.

LIZZIE L. MULLIN, age 10.

Oakland, Colorado Co., Texas, Feb. 17, 1886.

Thank you, friend Lizzie. It is true, the bees never respect the Sabbath: but working on Sunday isn't the worst thing they do. I have sometimes thought that Sunday was their favorite day for stealing and getting into mischief generally, and on holidays, when folks are not at home. Several times on coming home from church I have found the little scamps on a "regular tear," as the boys say.

ERNEST.

HOW TO EXTRACT, AS TOLD BY JACOB.

When we extract we take the smoker and smoke the bees well, and then take the combs out of the hive. We next cut the cappings off with a knife, and then put it in the extractor. We then turn the handle around. But if larvae are in the combs we have to turn very slowly. We turn until the honey is all out, and then take the combs out of the extractor, putting them in the hive again. We take the cappings off the combs, and then when we get enough we try them up and then take the wax down to the drug-store and sell it. We got 65 cts. for one pound nine ounces. JACOB BATTERSBY, age 11.

Port Dover, Ontario, Canada.

Your description is very good, and shows that you have had some actual experience in the apiary, aside from what can be learned in books.

ERNEST.

HONEY AND ALUM FOR COLDS; FROM A LITTLE GIRL WHO LIVES AMONG THE INDIANS.

Honey, with alum grated into it, is good for the croup. I am an orphan girl. I live with Mrs. Thomas, and take care of little Ollie. We keep bees, and take GLEANINGS. Mrs. Thomas and I are going to attend to the bees this summer. Drones were flying the first day of April. Mrs. Thomas has given away a good deal of honey. We make candy of it too.

LILLIE MILLS, age 11.

Stringtown, Choctaw Nation, Ind. Ter.

I presume you have Indians all around you, and that you do not find them so terri-

ble as little folks are apt to imagine. By the way, if I am correct, the Choctaw Indians are the most civilized of any race of Indians in America. Missionaries are making every effort to get them started in agriculture. Now, can't you do a little missionary work, and get the red faces interested in bees? You can show them how delicious a thing is honey, and perhaps induce some of those who are not particularly fond of agriculture to start in bee culture. Unless I miss my guess, an Indian and his papoose have a sweet tooth somewhere. May we hear from you again? ERNEST.

A PRAYER FOR CHILDREN.

Inclosed please find a beautiful prayer, clipped from *Zion's Watchman*. My little brother and I have learned it by heart, and repeat it every night before we go to bed. Will you please print it in GLEANINGS, so that many other children may see and learn it too?

Father, now the day is past,
On thy child this blessing cast:
Near my pillow, hand in hand,
Keep thy guardian angel-band;
And throughout the darkling night
Bless me with a cheerful light;
Let me rise at morn again,
Free from every thought of pain;
Pressing through life's thorny way,
Keep me, Father, day by day!

Papa put out some rye flour for the bees to-day, and they worked on it quite well. My mamma does not think that honey is of any use for a cough or cold, where persons are used to eating it every day.

EVA GREGG, age 7.

Galilee, Wayne Co., Pa., April 2, 1886.

HONEY NOT GOOD FOR COLDS; MILK A REMEDY FOR "HONEY-ACHE."

In answer to your question, my mamma says she has been doctoring babies for 32 years, and never found honey of much use for croup. Honey is astringent, which is contrary for either colds or croup, and mamma says people should be very careful in giving it to babies. She was at a neighbor's house with her baby. A young woman fed it a little honey, and the babe soon began to scream and cramp. As soon as the girl told mamma what she had fed it, mamma poured cream down the babe, and it soon got better. Mamma thinks cream will always help in such cases. She always uses maple syrup or simple syrup for colds. We all love honey very much, but mamma won't allow us to give Huber any. He is my little brother, five months old. He is very smart, but cries much with the earache. Can you tell us of any thing in the next GLEANINGS that would cure it? Papa has lost only one swarm of bees, but it is very cold here yet. We have just commenced making sugar. Mamma sugared off 81 lbs. last Saturday. TESSIE A. TAYLOR, age 10.

Shelby, Oceana Co., Mich., Mar. 29, 1886.

Dear me! when *juvenile* doctors disagree, who shall decide? Some say honey is good for croup, and some say it isn't. I am almost inclined to believe you are pretty nearly right.—Giving children nice rich milk or cream is undoubtedly good for little folks when they have the honey-ache (you know what that is, boys), from an overdose of honey. You remember father Langstroth once told of his little grandchild coming to him and complaining, after eating too much new honey, "O grandpa! I've got 'stomyache'" (honey-ache). His good grandpa at once prescribed milk. This the child took and was

better. I often can not eat very much honey myself, without old Dame Nature making a "howl;" but when I take milk with it I get along very well. The old Bible expression, "A land flowing with milk and honey," seems to imply that the two should go together. So, little folks, when you take honey to cure a cold, and then get the "stomyache"—"out of the frying-pan into the fire," drink some good rich milk.—In regard to the earache, I suppose I have suffered from it as much as most people—having had it day and night for a week at a time. Many of the remedies that are commonly prescribed are worse than useless. Never tinker with your ears. Soaking the feet in hot water, and then taking a good sweat, being careful not to take cold, is the only thing which I have found that will give relief. I have instructed the clerks to send you a chromo, as I think you deserve one. ERNEST.

A NIGHT RAMPAGE—BOYS STEALING A SWARM.

Last summer some boys thought they would have some honey (campers, I suppose), so they came about 11 o'clock one night and were carrying off a hive. Just as they were carrying it to lift over the fence, Cousin Will, who was coming home from seeing his "best girl," heard them. They dropped the hive over the fence, upside down. The cover flew off, and the frames fell out, one of which they grabbed and ran over the road, and Will after them. They ran about 40 rods and dropped the frame of honey, and dodged out to the side of the road, and slipped by him before he knew it, as it was very dark, and then he came back and told papa, and he got up and went down with the lantern, but the bees were all out, and he could do nothing with them, and had to leave them thus in the road until morning, then he took out the frames and put them in a new hive and set them back on their stand, and they are now doing well. SKIP.

Covert, Seneca Co., N. Y.

Thank you for your account of the stealing, and the results. Although you say your father could do nothing with the bees, you do not mention whether the bees filled the air in the dark, or only a few flew out, and the rest remained in the hive in the condition it was. If the bees swarmed out in the dark, I should like to know whether they all got back to the hive before daylight. It would be an interesting point to know whether scattered bees can in the dark cluster in one spot, guided only by the hum of their comrades. Can we hear from you again? ERNEST.

DO QUEENS LAY, 3 DAYS FROM THE TIME OF HATCHING?

Pa put up one nucleus in 1885, and got 125 lbs. of surplus honey that season; that was the best yield he ever got from one nucleus. Perhaps you would like to know how he makes a nucleus. He first puts in one rack of honey; second, a rack of sealed brood; third, a rack of fresh eggs; fourth, a rack of sealed brood, so as to leave the rack of eggs in the center, from which he expects to rear his queens; then he lays a piece of ducking over them, and lets it hang down the empty side to keep them warm. Ten queens is the most he ever got from one rack of eggs. He transferred 3 of them before they were hatched, into other nuclei. When they hatched,

and were three days old, he found, in each nucleus, a space as large as his hand, with fresh eggs. That was the earliest he ever had them lay, or ever heard of. If you ever heard of anything like that, let me know.

I have been to school about four years. I like to go to school very much, and I like to see a nice dish of honey on the table.

MARY JANE WALTER, age 11.

Wahoo, Saunders Co., Nebraska, Mar. 12, 1883.

I think Mary Jane, there must be some mistake somewhere, either in your record or in your father's experiments. Did he not by mistake get the old queens from the hive and take them along to form a nucleus? I have done the same thing several times. I do not think it possible for a queen to commence to lay when only three days old, and they must have commenced a little sooner than that, even, or they would not have had a patch of eggs as large as you state.

THE RESURRECTION PLANT.

One day I gave papa ten cents (he was going to Lincoln), and asked him to buy me a hoop or else a flower. He noticed a man at a street corner, who was standing by a little stand with a curious plant to sell. He called it "Mexican moss." Papa bought one for me. It was all dried up, and seemed to have no life in it. I put some water into a teacup, and then put in the plant. It began to slowly open, and soon the cup was too small for it. I then put it in a saucer, and it continued to open, growing green at the same time, until it was nearly as large as the saucer. In about three days I laid it away, and it dried up the same as before. When dried up it is about as large as a hen's egg, and of a light brown color. Once in about two months I take it out, put it in water for about three days, and then put it away. It has a small bunch of thread-like roots, and, when dry, they form about one third the bulk of the whole.

KATIE MELICK, age 11.

Waverly, Neb., March 30, 1886.

Friend Katie, I have seen these resurrection plants, and have been quite curious in regard to them. Are you sure the plant comes to life again? Will it grow and produce more of its kind, if kept constantly wet? I do not believe it will, but may be I am mistaken. May be somebody else can tell us about it.

HONEY, AND OTHER REMEDIES FOR COLDS AND CROUP.

In answer to your question in GLEANINGS, March 15, in regard to honey as a remedy for colds, ma says it is a good one. Sage, steeped and sweetened with honey, is good, and I guess this is the reason California honey, which is gathered from wild-sage flowers, is better than our basswood. I am sorry that Arthur had the croup, for I have had it several times. Take goose-oil or soft lard, add a few drops of spirits of turpentine; with this, bathe the throat and chest, then apply a hot cloth; this gives immediate relief. I am 12 years old, so I do not have croup any more.

There are a good many bee-keepers around here, and I think we shall stand a better chance this year than last, as we all rest heavily—some all. The bees are coming out well this spring. I think snow is a good thing for wintering. Ours were covered completely. When we took away the

snow in March the queens we got of Oliver Foster had brood in all stages.

GEORGE W. REAR.

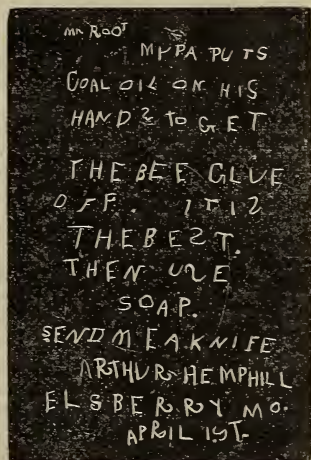
Uxbridge, Ont., Canada.

Thanks, little friend, for the fact in regard to the sage. It is possible that the flavor of the sage in almost all California honey may account for its being better for colds and croup. Mountain-sage honey, from my own experience, does seem to have curative properties that other honey does not have. I should very much like to hear from the other little girls and boys who may have compared sage honey with that from other sources and its effect on colds.—Arthur has now gone home to his parents, but to my knowledge he has not had the croup since he took that "dose of cheese-rinds," and afterward the honey.

You have given us one more fact of interest. You say your bees were completely covered with snow, and that they wintered well. J. B. Mason, in a recent number of GLEANINGS, you remember, thought snow quite detrimental to successful wintering.

ERNEST.

REMOVING PROPOLIS WITH COAL OIL.



Our little friend Arthur Hemphill is too small to write his letter, so he has printed it, and sent it to us. We were a little afraid if we simply set the letter up in type that it would lose a great part of its originality, so our engraver has here reproduced it just exactly as Arthur sent it to us. This is what big folks

call a fac-simile. What's a fac-simile? Well, ask your mamma, if you don't understand from the above.

ERNEST.

A LITTLE GIRL WHOSE FATHER HAS THREE APIARIES.

My papa has kept bees for eight years. He runs two other yards, one six the other eight miles from our home apiary, where we (that is, mamma and I) work the bees. We gather all our honey on carts, with springs under them, so there is no jar. Pa makes all of our fixtures by water-power, improved for the express purpose. He has invented a bee-feeder, made from a square oyster-can. He thinks it beats them all for cheapness and adaptability. It looks to me like a cigar-box with a sliding cover.

There is, about a mile from us, a spring said to be the largest in Minnesota. We live on this spring branch, in which are speckled trout. Pa caught one weighing 3 lbs. 15 oz.

GRACE KLECKLER, age 13.

Spring Valley, Minn., Jan. 12, 1886.

Very good, Grace; but we should be very glad of a longer letter. Perhaps a great

many things that your father does would be interesting to the mass of our readers.

HUBER MILLER.

I have the smartest baby-brother. He is 14 months old. He could walk when he was but 9½ months old; and what do you think his name is? It beats your baby's name a long way. His name is Huber Miller. You know that Doctor Miller is a great bee-man too. My little brother Josie is nearly 6 years old. He was paralyzed when he was 5 years old. He is quite lame in his left leg. He stays in the shop with pa nearly all the time. He makes little boxes, and calls them his bee-hives. We have three white rabbits. Josie and Huber like to play with them. Pa's bees wintered nicely for him. He has 25 colonies. Some bee-keepers lost all their bees this winter.

NANNIE C. SHAUER.

North River, Virginia, April 2, 1886.

REPORTS ENCOURAGING.

AN A B C SCHOLAR RECEIVES 97 LBS. OF HONEY PER COLONY.

I AM an A B C scholar, and have kept bees for a year now. Last year I worked for extracted honey, and took 97 lbs. per hive. My bees are right in the heart of the city, and I think this was doing pretty well. Not one colony offered to swarm, and I did not increase at all. I wintered them in Simplicity hives, packed with chaff, as you directed in the A B C. They came through the winter very strong—not one colony lost, and all are doing very well now.

SHALL WE DIVIDE OR NOT DIVIDE, IN ORDER TO GET THE MOST HONEY?

This year I decided to work for comb honey, and I should like to ask you if as much *comb* honey can be obtained if we keep the old stock in very strong condition, and give plenty of room for surplus, as if you divide at the beginning of clover yield and have two colonies at work. I have looked this up in all my works on bee culture, and can find no satisfactory answer to it.

PERCY T. WALDEN.

37 Putnam Ave., Brooklyn, N. Y., Apr. 23, 1886.

Friend W., the question you propound is an unsettled one. See what is said in regard to it on page 271.

WINTERED 168 COLONIES OUT OF 110.

I am much pleased with the new departure in the interests of horticulture. I like this mixing of subjects extremely well, and would not like to see GLEANINGS conducted on any other principles.

I put 110 colonies in cellar, 4 of which I expected to carry out dead in winter. I have 108 "alive and kicking" at this date, very quiet, and apparently in good condition.

We live on the forty-fifth parallel. Last year was a poor honey-season in this part—nothing but bass-wood honey, although white clover and buckwheat were abundant. We took about 2500 lbs. from 58 colonies, spring count; increased to 110. Blacks gave better returns with me last season than either Italians or Holy Lands; in fact, the latter did nothing but swarm, as I did not get a pound of honey from them, and had to feed them for winter. I am trying some young queens that are crossed; and if they don't do better, off come their heads.

Almonte, Can.

J. K. DAWLING,

TOBACCO COLUMN.

I, THE undersigned, have quit the use of tobacco in all its forms; and if I am entitled to a smoker, please send the same. If I ever commence again, I will pay you for the smoker.

J. L. BAKER.

Henton, Shelby Co., Ill., Feb. 26, 1883.

I received my smoker, and was well pleased with it; and if I ever use the weed again I will pay you for it. I am very much obliged to you. GLEANINGS comes all right. We put 8 colonies of blacks in the bee-house last fall, and took 8 out. Two were robbed, leaving 6 strong colonies.

Barber's Mills, Ind.

ISAAC THROSSKILL.

A LITTLE GIRL'S INTEREST IN HER BROTHER.

Brother John has quit the use of tobacco, and desires me to say that if you see fit to send him a smoker he will pay for it if he ever uses tobacco again.

LAURA M. HOBBS, age 12.

Middleport, Meigs Co., O., Mar. 22, 1886.

Well done, friend Laura. You now see how much a little girl may do if she sets about it. After your brother sees your letter here in print I am sure he will not want to break the promise he has given here before so many people. You see the promise is down in white and black, and it has been printed more than five thousand times, and perhaps ten thousand people will see it, and he will surely stick to it before the eyes of all this great company. Don't you think he will?

WILL QUIT THIS TIME.

My husband has left off tobacco, and I thank God. If you send him a smoker, I should be glad. He left off two months ago, and I guess he is in earnest this time. I thought so when I married him; but he says he will own up and pay for the smoker if he fails again. He is too proud to own his weakness. I think you will get him this time; because if he did use it he would pay up.

MRS. D. E. CLICKNER.

South Allen, Hillsdale Co., Mich., Mar. 6, 1886.

I agree with you, my good friend, for I think we have got him this time. If he has consented to let you write this letter, to be published, that consent and that promise will brace him up to hold out.

I saw your offer in GLEANINGS, to any one who has quit the use of tobacco. Well, I have induced a man who is living with me, and who has used it for 30 years, to stop. He says that he will never use it again if you will send the smoker. I will stand good for him; and if he resumes the use of tobacco I will pay for the smoker. There is another who has quit chewing. We had a prayer-meeting the last night of the old year, and prayed and sang until the new year, and he set out to quit then, and has gained ten pounds.

M. SIMPSON.

Gatesville, Coryell Co., Texas, Feb. 27, 1886.

Well done, friend S. And, by the way, I think one of the most efficient modes of working against this tobacco evil is to get your friends to quit, and also get their consent to let you have the promise printed in GLEANINGS. If you stand good for that friend, we shall be safe, and the Master will stand good for us all while we are trying to further the cause of purity and temperance,

OUR HOMES.

Thou shalt not covet thy neighbor's wife, nor his manservant, nor his maidservant, nor his ox, nor his ass, nor any thing that is thy neighbor's.—Ex. 20:17.

WHILE I write this beautiful 10th day of May, our country is stirred by fierce conflicts between labor and capital. With the beautiful weather we have had, and the bright prospects for bountiful crops, it would seem as if not only all nature but all mankind should be at peace with themselves and at peace with God. Why must we have such troubles, and this, too, in a land of liberty, and a land of churches and Christian people? Some will tell us it is caused by one thing and some another. But is it not true, that the one great prime cause is the breaking of this last of the commandments? We are continually wanting something that belongs to our neighbors. I have been told that the Chicago troubles were mainly caused by a class of people that would take all the property in the world away from the rich and give it to the poor; that is, that they would have it divided up and equalized. I have not been told whether gamblers and inebriates and highway robbers were to have an equal share with the rest or not; but I suppose they would, of course, come in. The only class that could think of wanting such an arrangement brought about would, of course, be those who expect to gain, and who are dissatisfied with the place in life that God has seen fit to give them. Now, it is not alone the gambler and inebriate and the highwayman who want what belongs to their neighbors, but I am afraid, my friends, the disposition lurks to a greater or less extent in the hearts of all of us. While it is true, that there are multitudes of good people who do not want a copper but what justly belongs to them, and who would not find any happiness in the possession of something for which they had given no fair equivalent, yet for all that these same good people sometimes get mistaken notions about the rights of property. Sometimes one who is employed by a large firm or company gets into a way of fault-finding, something like this:

"Now, just look here; I have been at work for Mr. A, B, and C, and have just been coining money for them, and yet I get only a paltry so much a month. If it were not for me, their business would half go down."

Or, perhaps, A, B, and C may get into a way of speaking of some of the best of their help as follows:

"Just look at that man. What was he when we first took him into our employ? He was not earning, all together, fifty cents a day. We took him in hand and taught him business principles. To make him feel pleasant and contented we advanced his wages time and again, and are now really paying him more than he is worth. But do you suppose he ever thinks of it, or ever feels a spark of gratitude? Not he."

Now, friends, the attitude of the employers is a bad one, and the spirit of the em-

ployee is a bad one. On both sides there has been the sin of covetousness, and the only real, true, rational remedy for this sin is the spirit of Christ—a spirit that prompts us to make it our business in life to do good, and to help the world along; the spirit of suffering long and being kind, even to the unthankful; a spirit of not being puffed up; of not thinking of what is our own or our just dues; of not being too hasty to think evil; the spirit that will enable us to bear and believe and hope and endure. I have told you before how this disposition grows on us—a disposition to complain and find fault when not getting our just dues. Do you not see that it is in direct opposition to a spirit of thankfulness? When Miss Ophelia asked Eva where she had rather live, up north or down south, she replied at once, "Down south, by all means." When asked for an explanation she replied, "Because there are so many more to love down south," meaning the negroes. Sometimes we complain because our station in life compels us to wait on so many different people. Reader, are you a waiter? If you are, instead of complaining of your lot, rejoice because you have so many more to love. Do you not think such a spirit would do much to quell the dissatisfaction that has sown the seeds for these present strikes that are stopping our railway trains, stopping the freights in many of our large cities, stopping mills, coal-mines, and factories, because of the disagreement between employer and employee—disagreement where there ought to be thankfulness and warm friendship on both sides? While so many are seeking work, it seems to me the man who furnishes work ought to be regarded as a public benefactor; and while so many are seeking to get faithful helpers, ought not those who pay them their wages week by week and month by month, to feel grateful because they have efficient and faithful helpers? I suspect that all these troubles attendant upon strikes have started in the first place from a habit of gossip in our homes. Perhaps at the family meals we have been discussing imagined wrongs when we ought to have given thanks for undeserved blessings. Before eating our food we ought to give God thanks; and then, to carry out the spirit of asking a blessing, we ought to be, by word and action, giving God thanks while we sit at the table; and thanks to God come pretty near, as you know, to thanks to our fellow-men. "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me." If you have said "thank you" and felt "thank you," to those who have helped you during the day, you have in one sense said "thank you" and felt "thank you" to Christ the Savior. How little chance there would be for strikes and quarrels in our business relations, if this spirit of thankfulness were cultivated and developed!

There is a want of faith between employer and employee—a want of confidence. Each seems to recognize the other as an enemy. Each seems to recognize the other as greedy and avaricious, and working only for the "almighty dollar," and not for love to his fellow-man. There is too much of greed

and too much of a want of conscience, I allow; but let us not be discouraged when we see this. Let us look for the better qualities that many times overbalance the evil. Good traits and evil traits may often be found in the same individual; or, if you choose, we often find men who seem to have a lack of principle in one direction, and in the next they show themselves liberal and generous. I don't know why it is, and I have just been thinking perhaps you may see the same disposition in myself. If you do, please think gently when you see my imperfections, and remember my other good qualities in a way that will help to overbalance them. Education, many times, has much to do with it. We have been accustomed to do tricky things, and don't stop to realize how wrong they are; and at the same time we may in general be generous and liberal. Let me relate a little circumstance.

I have just purchased a span of horses that cost me toward \$400. Good judges declared I had one of the best teams in the county. For several weeks they seemed perfect, without a flaw or fault. Finally one of them showed unmistakable symptoms of what we took to be blind staggers. A good friend of mine, and one whom I have always considered to be a very honest man, advised me to keep still about it and never mention that such a thing ever happened. This attack happened luckily (so he said) out in the fields, where nobody noticed it.

"Just keep still about it; take him into the city of Cleveland; and as nobody can see a *thing* amiss in his looks, you can sell him for all he cost and more too."

I protested.

"Why, said he, he was put on to you, and you are an innocent party. Just sell him the same way you got him, and may be he won't show it again for months, and perhaps not at all."

I quietly replied, that, if he were sold, the one who bought him should know as much about his failings as I did.

"Why, my friend, you can never get through the world that way. You will be swindled when you buy, and swindled when you sell; for if you tell what you know of this horse, you might not be able to get a fourth of his value."

I replied that I had got through the world so far, and never lacked friends or money, and that I should take the chances of being honest before God in all my transactions, no matter if it did cost me \$150 or more.

I mentioned the subject a few evenings ago at one of our teachers' meetings, when an old farmer present said that the fashion of buying and selling stock or produce in the way I had illustrated was the besetting sin that was the ruin of our churches, many of them, as well as of their members, and that strict honesty in deal was more needed than almost any other one thing.

Now, friends, how much do you think such transactions have to do with the want of faith between employer and employees? or the lack of faith among men in each other, because of these crooked things? I am happy to tell you that a veterinary physician told us a few days afterward that my horse

hadn't had the blind staggers at all. He said that it was caused by a rush of blood to the head; perhaps by overfeeding, or more likely because the new collar he had been wearing didn't fit right, and obstructed the circulation. He said if the horse had had the blind staggers it would show in the animal's eyes; whereas his eyes looked perfectly bright, and he was as full of life the minute after the transaction as he ever was. Furthermore, he never showed any such symptoms except when he was pulling a load. Now, then, the friend whom I have quoted above was an old farmer and an old horse-trader. A great part of his life had been spent buying horses of the farmers for city markets. I may not have given the conversation exactly as it occurred, but the substance of it was the same. A few days afterward I wanted to buy some manure of this same friend. As he kept a good many hens and only one horse, a large part of the manure was from the poultry. I told him that, under these circumstances, I would give him 25 cts. more for it than what I had paid other people. He said he didn't want any more; he was quite willing to sell it at the regular price, if I would take the whole. I examined it, and told him it was well worth 25 cts. more, but I could not make consent to take it. So you see he is not close in deal, and does not lack in liberality. These things are, as you see, a good deal the force of habit. No doubt Satan takes advantage of these habits and ways; and no doubt he is constantly seeking opportunities to whisper covetous thoughts and feelings to us. I have seen this little evil weed of covetousness take root, and grow. I have seen it increase from month to month, and from year to year. When the poor tempted sinner gives way to it, and indulges in uncharitable thoughts of his friends and neighbors, he soon gets to talking to others about his wrongs and indignities; and if the love of Christ does not come in to pull him out of the abyss into which he has fallen he may not bring up until he reaches the penitentiary or insane-asylum.

A good deal of this spirit of covetousness comes from mistaken notions that people have about what others *ought* to do. A pretty wise old lawyer once said to me, "People *ought* to do whatever they agree to do. When a man does that, he is a pretty good man."

Perhaps this code might not be safe for a Christian, but I think all of us would be better Christians if we kept the matter in mind. A man once brought me half a barrel of maple syrup. Now, I had learned by experience to be careful about buying. I told him I would take it if it was just to my notion, and the price suited. I was careful not to say if it were *good*, because so many had declared that their maple syrup was strictly first class, when I didn't pronounce it so at all. After testing it I told him he must have been careless about cleansing the barrel, for that it had a musty taste that would very much injure the sale of it with my customers. He declared there was no musty taste about it at all. I pleasantly told him we would have to call it a difference of opinion, but that I didn't care to buy it.

At this he became abusive. He said that was just the way we town folks took advantage of farmers. We got them to bring their produce, then pretended there was some fault with it, in order to get it for half its value. Now, I hadn't *agreed* to buy the man's maple syrup at all. I had advertised to buy maple *sugar*, but hadn't advertised to buy *syrup*, and he was abusive because I exercised my privilege of buying or not buying, as I chose.

Suppose I want a man to work for me. He says he will work for two dollars a day, but he doesn't care to go to work at a less price. Now, perhaps I am acquainted with him, and do not consider him worth over *one* dollar a day; but he has a perfect right to refuse to work for less than two dollars, if he chooses. I have no right to feel hard toward him, nor to complain. His strength and skill are his own, and he has a perfect right to do what he pleases with them—that is, within the bounds of reason. He has as good a right to ask two dollars a day for his labor as the man who raised strawberries in February has a right to ask two dollars a quart for them. If we do not want to pay that price for strawberries, we are at perfect liberty to decline, or let them remain in the greenhouse where they were grown. Just the same with labor. Although strawberries could not be raised at the above prices and sold here in Medina, I should have considerable respect for the man who was so much of an expert with plants and fruits that he could raise a crop of berries in the greenhouse every time without fail.

I admire skill in any department, and I do love to see men and women who can command big wages. When I am in need of such skill, it is a great pleasure for me to pay big wages. So far, well and good. But suppose some old hand of mine should make up his mind that he couldn't work for me any longer unless I should pay him considerably more than I had been paying. Ought I to feel hard toward him? Not at all. Nor has he any right to feel hard toward me if I pleasantly say I can not afford to give what he thinks he ought to have. Neither of us should feel hard if, in discussing the matter we can not agree. I may think he magnifies his value, and he may think I am mistaken in thinking I can get along without him, or supply his place easily. We often have different opinions about these things; but if we are striving after righteousness, we certainly ought not to feel unkindly toward each other because of these differences in opinion. Now let us go a step further, and suppose this hand should wait until the busiest season of the year—the time, in fact, when it would be most difficult for me to supply his place on short notice, and then demand an increase of wages before he would consent to keep on with his work. My friends, I think he has a right to do this if he chooses, although it seems to me it is a rather unkind way of doing, especially if relations have been of a friendly nature. If there has, however, been no agreement in regard to giving notice before leaving, I can not see that we should have any right to censure very much. My old lawyer friend

would say, "What was the agreement?" If no agreement at all on either side in regard to stopping without notice, he would say we had no right to find fault. Old and tried hands are often hired by the year, and sometimes an agreement is made that either party shall give a notice of 30 or 60 days if they wish to change relationship. A Christian man, or even a gentleman, would usually tell his employer that he would stay by him until he got over his crowd, or until he could look up a substitute. Those who are working for me have almost invariably been willing, or preferred to do this. Perhaps it is because those who do the work for me are, as a rule, personal friends, and I am glad to say those who are not given to the sin of covetousness. They do not want to put me to trouble and expense, even though they may think I have not paid them as much as I might have done. A Christian man is commanded to "do good to those who hate" him. Now, if we are to consider the interests of our *enemies*, and try to do them good, how much more are we under obligations to consider the interests of those who have been our *friends*, and strive to do *them* good!

Now, when we consider a case where the entire hands of an establishment, or at least a great part of them, enter into a combination to demand more pay, we come right into the strike business. Is it right? Well, I think it is right and proper for laboring people, or working people of a factory, to agree together in this way, if they choose so to do. But if they are Christians I think they will give their employer sufficient notice beforehand, so that he may make arrangements to avoid loss. Everybody has a right to work or not, as he chooses. He has a right, too, to sell his skill and strength to the highest bidder, providing he does it in a gentlemanly way—in a way consistent with "thou shalt love thy neighbor as thyself." Well, now, very likely I look at the matter from one side; but it does not seem to me as if it were right for those who give up their places, to discourage in any way or in any way try to prevent new hands from taking the places they vacated. When we step over into this matter, telling others what they shall or shall not do with their labor, it seems to me we are getting on dangerous ground. I have sometimes replied to the friends who had their hives and honey stolen, that there was a fault away back somewhere, and that the best remedy would be to encourage Sunday-schools and churches in places where such things happen.

It seems to me that such is the case where this matter of boycotting and strikes is rampant. There surely is a lack of godliness, a lack of Bibles, and a lack of Christian spirit. I can hardly think such a state of affairs can come about where the proprietors are good Christian men—where they have been working for the interests and for the salvation of the souls of those they employ. It seems to me that it indicates a bad state of affairs, and that this bad state must have existed some time back, or matters would never have come to such a crisis. We have proof of this from the fact that the law is almost powerless. These combinations are

formed, and this work of intimidating any who attempt supplying the place of the strikers goes on in broad open daylight, and in a land that we fondly call a land of liberty. In our neighboring town of Akron, strikers have even intimidated the proprietors of boarding-houses, threatening them if they entertained those who propose to take the places of the strikers. Jesus said, "Blessed are the meek, for they shall inherit the earth." Strikers seem to think that the right and proper way to inherit the earth is to do it by scaring the people with bowie-knives and revolvers; and these things go on, and nothing much is done about it. Well, I am not sure that much can be done about it, unless we begin at the root of the matter.

When a man tells me that he can not get along with his wife because she has got to be so ugly, I usually inquire if there is not a *pair* of them that have got to be "ugly." And where a manufacturer has strikes among those in his employ, it seems to me that it indicates not only a bad spirit among his hands, but a bad spirit in the employer. A short time ago I went with my daughter Maud to visit one of her college mates. This college mate had just begun housekeeping, and the young couple were a model husband and wife. After a while the husband incidentally remarked that they had had their wages cut down. I asked him how the employers managed to do it. His reply was, "They did not manage at all." They had been working all the week just as usual, and supposed they were to receive their usual wages. Saturday night, instead of receiving the usual amount, they found that about 20 per cent had been kept back. Some of the most intelligent of the men went back and asked if it would be out of place to ask for an explanation, telling the paymaster that, if business was dull, and the cut-down was a necessity, they were not disposed to be unreasonable, but felt as though something ought to be given by way of explanation. The paymaster replied in a harsh, overbearing way, "If you don't like the pay we give you, you know what to do." These same proprietors have had terrible troubles within the past few weeks; and if I should treat my hands in that way, I should be sure that terrible troubles would come here. Why, I wouldn't hurt their feelings, as I know such a thing must hurt, for all the money the world could furnish. I have sometimes had to cut down wages; but I have never done it, I believe, without talking the matter over, and arranging for it in a neighborly and friendly way a week or more *before* the reduction was to commence. Sometimes my hands go away because I can not pay them more, but almost always with a friendly hand-shaking, and kind words on both sides. Dear reader, is it not worth something to so live that your relations with your fellow-men may be like this? and is there any name given under heaven whereby we may be saved from these troubles except that of Jesus Christ?

This very matter, by its strong contrast, gives us a wonderful glimpse of the beauty of the character of Christ. He came among

men, a man himself, and yet a man that coveted nothing belonging to his friends and neighbors; a man who, although he was intensely human, yet labored and died for others, and never performed even one miracle for himself — no, not even when he hungered and thirsted. Thank God, the spirit of Christ exists in other human hearts, even at this date. Multitudes of earnest, honest Christians are laboring for the good of their fellow-men, scarcely thinking or caring for self; and through such as these, such as are living examples of the Christian spirit, we are to find relief from all these troubles. So long as great multitudes are living for nothing but money or gain, so long shall we have fierce conflicts; but when men can be educated and taught to obey in spirit as well as action the commandment at the head of this, then may we expect "thy kingdom come, thy will be done on earth as it is in heaven."

A FRIEND IN TROUBLE.

AND SAID TROUBLE CONTAINS A VALUABLE FACT FOR THE ENCOURAGEMENT OF BEE-KEEPERS.

I WROTE to ask the editor of the Baltimore Weekly *Sun* if he could tell me how to get rid of honey-bees from our house. He replied that he would advise me to write to A. I. Root, Medina, Ohio, "who is authority on all such subjects." The bees took possession of the side of the house, between the plastering and weatherboarding, and have been there for 15 years and more. Twice we had them removed, with the promise they would not return; but the next season they came with double quantity. A year ago the moths destroyed them; but in May, three large swarms came in, and are still in possession. The house is suffering for need of repairs, and I am in great distress, as I can't get any one to go near them, as they seem to be very spiteful. Is there any way to keep them off, or to destroy them? I shall be truly grateful for any thing you can tell me to do. I am a poor woman, with no gentleman to act for me. C. T. FENWICK.

West River, Md., April 10, 1886.

Why, my dear friend, your little story contains something wonderful for the encouragement of bee-keepers. If you can not find some enterprising bee-man to help you out of your trouble, it will be strange. We have for years been working and devising to get some arrangement that would induce bees to take up, of their own accord, with some hive already prepared for them, instead of going to the woods. Now, your house, or, at least, that portion of your house, seems to have, by accident, met the requirements entirely; that is, if, as you say, bees persist in coming to you for a lodging-place. Are you not mistaken in thinking that *three large swarms* came all at once? If so, it is a phenomenon beyond any thing heretofore recorded in this line. If you don't hear from somebody who will help you out of your difficulty within ten days after the issue of this paper, let us know, and I think we can help you. We are very much obliged indeed to the editor of the Baltimore Weekly *Sun* for his good opinion of us.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

SOME weeks ago our good friend Chalon Fowls, of Oberlin, O., wrote us that he had been talking with one of the largest wholesale firms, dealers in fruits and vegetables, in Cleveland, in regard to bogus comb honey, but that he could do nothing with them at all. They just laughed at him when he attempted to convince them that there was no such thing as manufactured comb honey in the markets. In despair he wrote to me, asking me to write to them, as they were personal friends of mine. I did so, and here is their reply:

We received your bee-journals, and read all the articles you marked on the subject; and until the other side bring forward some proof to substantiate their claims, we shall not admit that there is such a thing as manufactured comb honey.

C. CHANDLER'S SONS.

Cleveland, Ohio, April 19, 1886.

You see, friends, the victory is ours. Through the influence of the bee-journals, and the friends of the honey-bees, these fraudulent statements have been met and refuted; and almost every live intelligent paper has given notice to its readers that the whole thing was a mistake. It is encouraging to find that we are not helpless in such matters; that earnest, persistent, faithful effort will always carry the day, especially in defense of the truth. Another thing encouraging in regard to the matter is, that we have proved that the press at large is not unwilling to refute error when it is rightly managed, with good men's names to back it. The *N. Y. Weekly Witness* held out hard and strong to the adulteration stories; but when I sent them a letter, explaining fully the points they had misapprehended, it was published at once.

NOTES AND QUERIES.

HURRAH FOR THE ALLEY DRONE-TRAP!

YOU will remember I got a lot of drone-traps of you, and I thought it might be of interest to you to know how they work, so here goes. I find the Alley drone-trap a perfect blessing, as you will never have a swarm to abscond, and you need not clip your queens either; and for second swarms, where there are more queens than one you can trap them and pick the nicest one; or if you need a virgin queen for a queenless colony, use the extra ones, or do as you please with them. I say, "Hurrah for Alley's drone-trap!" I would not be without mine for twice what they cost.

Gonzales, Tex., May 3, 1886.

M. BROERS.

25 CHICKENS HATCHED OUT OF 26 EGGS.

You had such good luck raising chickens this spring, I thought I would tell you of mine. I set 26 eggs, and had 25 chickens. They are all alive, and doing well.

MRS. T. H. MILES.

New Richmond, Pa.

ANOTHER USE OF THE CLARK SMOKER.

I got one of your smokers—not for bees, but for bugs. I have tried it with tobacco-stems, on rose-bushes, etc., and it performs beautifully. I have not seen it spoken of as a "terror to evil-doers" in that way, and I thought you might be interested in hearing of its success.

W. B. MARSHALL.

Indiana, Pa., May 5, 1886.

A GOOD REPORT FOR AN IMPORTED QUEEN.

You wish to know every one's experience with imported Italian queens. Mine has been good. The imported queen that I got from you a year ago last July is far ahead of any other I have ever had, in every way. Her bees are quieter in winter, and will not swarm till every crevice in their hive is filled up. I have sold off most of my other stocks, and will keep only those raised from my imported queen.

THOMAS CHRISTIAN.

Lorraine, Ont., Can.

HOW TO USE THE HEDDON SLATTED HONEY-BOARD ON THE SIMPLICITY HIVE.

White clover is unusually plentiful this spring. I should like to ask how you use the Heddon slatted honey-board on the ordinary Simplicity hive. By answering the above you may oblige others as well as myself. I would not think of keeping bees without the A B C and GLEANINGS.

FRANK A. DURAND.

Esdaile, Wis., April 29, 1886.

[We have never used the Heddon slatted honey-board on any hive, but we have made a good many of them to order, made so as to lie perfectly flat on top of the Simplicity frames. The upper stories are then raised enough to make sufficient space for the honey-board, by tacking strips on the upper hive.]

ADVANTAGES OF EXTRACTING.

Two months ago I shipped to Portland some of the whitest extracted honey I ever saw. It was taken from goldenrod and blue aster, and such good clear honey, free of that strong taste, I never had before. The more I see of extracting, the better I like it, for we can keep colonies so much stronger that we shall get honey, even in a poor season. I am satisfied that we can keep down the swarming fever better by extracting before much honey is sealed over, because it keeps the bees working to fill those empty combs. I have no fear about evaporation; warm weather does that all right; and besides, new honey works much easier. Considerable is said about half-pound boxes. Now, why not just out the 1½ box in two, so as to be only half as large around? Then two will take the place of one, and there will be no confusion, you see. I shall try it if nothing prevents. It is quite inconvenient to have a number of different sizes; but with this there would be no trouble.

E. P. CHURCHILL.

Lewiston, Maine.

THE SPRING DELIGHTFUL.

We are having a delightful spring. The fruit-trees in this part of the country are loaded with blossoms; the bees are busily engaged in securing supplies from the open flowers, and building up rapidly for the coming season. Our bees, 20 stands, came through all right, bright and clean, the past winter. I am of the opinion that good honey to winter on has more to do with successful wintering than any thing else. We have the Italian bees

in A. I. Root's chaff hives, wintered on the summer stands. I have found out that section combs that were not capped over, the honey being removed, are not suitable to use again. They become tough and hard; last season the honey-flow was short. The bees gathered enough to winter well in this part of the country. J. M. McREYNOLDS.

Topeka, Ill., April 27, 1886.

A GOOD REPORT FROM THE CONTROLLABLE HIVE.

Friend Root:—I have 18 hives of bees in Mrs. Cotton's Controllable hive, and they keep me busy. It is the best hive I have seen so far. I hived one swarm of bees in a Controllable hive last year, June 5, and have used Mrs. Cotton's new system of bee management, and that swarm left me 234 lbs. of surplus comb honey, and came out all right this spring.

WM. HIESTANDS.

Palm Station, Pa., Apr. 27, 1886.

[*Friend H.,* we are very glad indeed to hear this, and I have no doubt but that the Controllable hive, managed according to Mrs. Cotton's instructions, will give excellent results. Neither is there any doubt but that Mrs. C. might do a large and profitable business if she would sell her goods at prices something near the usual price asked for bee-supplies.]

OUR OWN APIARY.

EXPERIMENTS WITH PERFORATED ZINC.

SOME one, whom I do not now remember, wrote us that the perforations in our new zinc were wider than those of the foreign make, and that he thought, in consequence, queens would get through. It is to be remembered, that six or eight months ago Mr. Henry Alley, who has had a large experience in zinc, pronounced the foreign as the best. If, indeed, the perforations in our zinc were wider than those of the foreign make, then our perforated honey-boards might be almost of no value for the purpose of excluding queens from the surplus-department. To test the truth of the matter I have made some careful measurements of the perforations, both in our own and in other makes. The instruments used for the purpose were some I had in college for laying out plats and making other accurate drawings. They are capable of measuring down to the four-hundredth of an inch, and with these I obtained the following results:

The width of the perforations in the foreign zinc was nineteen-hundredths of an inch; the width of the American, with oval holes, sixteen-hundredths; the Jones, eighteen-hundredths; our own, a width between the foreign and the Jones zinc. I verified these results with a steel rule having hundredths of an inch marked off, so that I do not think I am far from the correct measurements. It is to be observed from the foregoing, that the perforations in our zinc, instead of being wider are narrower by a difference that is very slight. If queens can not get through the foreign zinc, then I do not think they will get through ours; that is, if measurements mean any thing.

Now, laying aside measurements with which we obtained the preceding fractions, let us put the zinc to an infallible test; namely, a trial in the apiary. Queens from different parts of the apiary were selected at random. Each of these was caged over the zinc in such a manner that the only means of escape back to the bees was through the perforations in the zinc. It was amusing to watch them in

their efforts to get through. After repeated twisting and squirming, their attempts were of no avail. Finally the apiarist selected the smallest, poorest queen he could find in an apiary of over 300 colonies. The efforts of this queen likewise proved a failure. The apiarist then picked queens up by the wings, and tried to force them through, but found that he could not do so without injuring them. The thorax of a queen is much larger than most people think; and one is apt to suppose, on looking at zinc, that queens can pass through that easily, when an actual test would prove to the contrary.

If a queen can not get through, can workers filled with honey? To answer this question I instructed the apiarist to get two bread-pan feeders. These he was to fill about half with honey, and to put over each the ordinary cheese cloths. The feeders were then placed under the maples some little distance from the apiary. Over one of the feeders as thus prepared was placed a piece of our perforated zinc, so adjusted that the bees could not get at the honey except by passing through the perforations. Over the other feeder in like manner was placed a piece of American zinc. My reason for testing the latter was to see how they compared in results. Besides, several of the bee-keepers have called for this American zinc, stating that they thought it better than the zinc of larger perforations. Well, what do results say? In a short time the bees were swarming over both feeders. Through our zinc the bees seemed to have no difficulty in passing, and, even gorged with honey, they appeared to get out as easily as they entered. Not so with the American zinc. The bees passed through tolerably well; but on becoming gorged with honey they were caged, and could not get out again. At the time I was there, perhaps half a pint of bees were shut in, and unable to make their escape. They could get perhaps half way through, and a few managed to squeeze out, but I am sure the friends will not find it economy to use it.

The size of the perforations should be such as to admit worker-bees filled with honey to pass freely, but not allow the same privilege to queens. As our dies were made after the foreign zinc, it seems to me we have hit the size pretty nearly.

CARNIOLAN BEES.

During the early part of this spring these bees seemed to be crossed with Italians, as nearly half of the bees were of the latter race. Now that the old Italians in the colony have all died off, leaving none but this new race, the steel-gray color mingled with the jet black stands out clearly. One can hardly form a correct idea unless he views a whole swarm of them at a time. But even yet I think when we come to talk about *pretty* bees the old Italians still take the lead. Aside from color, I have not yet discovered that the Carniolans differ very much from the Italians. If the former should in no way prove superior, the mere matter of color or beauty ought not to warrant us in introducing this new race in our apiaries very largely. The crosses with the yellow bees would not very easily be distinguished from the old-fashioned hybrids—at least, customers would not know the difference, even if we did.

NUMBER OF COLONIES UP TO DATE.

In addition to the original 181 colonies, we purchased 41 of friends Shook and Rice. After dividing up a good share of the strong colonies we now have 300 fair stocks. E. R. ROOT.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAY 15, 1886.

There is none other name under heaven given among men, whereby we must be saved.—ACTS 4: 12.

THE CHAPMAN HONEY-PLANT.

FIFTY plants, strong and healthy, are all growing, as reported on page 391. They very much resemble thistles. We have given them good rich ground, between rows of small apple-trees, so they can remain in the same place three years or more. As soon as they are in bloom we will watch them carefully, and probably have engravings made of the plant in bloom.

A COURSE IN ENTOMOLOGY.

At Cornell, a summer course in entomology and general invertebrate zoology will be instituted under the personal supervision of Prof. J. H. Comstock, of whom mention has been made before. Here is a chance for "beeists" and others who may desire instruction in the special anatomy of the bee, as well as of other insects. Further information can be obtained by writing to the professor in charge.

"A YEAR AMONG THE BEES."

THIS is the title of the book just out, written by our old friend Dr. C. C. Miller. It arrived too late for a review of it to appear in this issue. If it is all as good as the introduction, which we have read, it surely will be a treat to peruse its pages. A glance at the contents is sufficient evidence to show that no practical bee-keeper can afford to be without it. It is published by T. G. Newman & Son, and can be purchased of them for 75 cts, postpaid, or can be obtained at this office at that price.

AN OLD ALMANAC.

W. LINCH, Maysville, Ky., sends us an old almanac, dated 1839. Among other industries mentioned in it we find a short article on the care and management of bees. The writer of said article discourages the cruel use of brimstone, current at that time. The hive he describes is a plain box, 13 inches square. Across the top of this are slats from which I presume combs are to hang. The boxes just mentioned are to be tiered one above the other, according to the strength of the swarm, and in this way the writer says he has tiered them four high. Tiering up, he claims, will largely prevent second swarms, which he asserts are almost useless. The contents of the article shows that we of to-day are not so original in many things as we think.

BUYING NUCLEI IN THE FALL, TO BUILD UP BY FEEDING, INSTEAD OF BUYING FULL COLONIES IN THE SPRING.

ON page 549 of our issue for Aug. 15, 1885, I wrote an article in regard to building up nuclei by fall feeding. If convenient, it may pay you to turn

back and read the above article. A friend wanted six colonies of bees to begin with in the spring. Such colonies as he wanted, we told him would cost him over \$100 in April, 1886; but we sold him select tested queens and nuclei for a little over \$25.00. He was to buy sugar, and feed them up before cold weather came on. Well, now, although our customer was a comparatively new hand at the business, having only his A B C book, and such instruction as, we briefly gave him, I am glad to be able to note that the six nuclei are now six strong colonies—no loss and no dwindling. The question I asked, when the above-mentioned article was written, was this: Will a pound of bees and a frame of brood and a queen, started, say, in the middle of August, build up so as to make what may be called a fair colony by the middle of November? Our friend's experiment answers it in the affirmative. His address is Thomas Painter, Oberlin, O., should you wish to ask him more about it. Besides the saving in money, he has obtained an experience that is worth more to him, perhaps, than the money saved.

MAKING PERSONAL ORDERS.

MANY of the friends within a hundred miles or so of our place have thought it a great advantage to come here and make their orders personally. It is true you can look at the goods and at the same time obtain matters of information. There is this about it, however: There is always a chance for mistake in taking down orders verbally. Then the controversy arises, "Who was at fault?" Only last week there was some misunderstanding in an order made verbally, and the result was that 1500 odd-sized frames were made wrong. If we have it all in black and white, as is in the majority of cases where orders are made by letter, it is a very easy matter to trace the source of the mistake. Another thing, it generally takes one of our valuable clerks sometimes half a day to wait on a personal customer, when the whole transaction by letter could be disposed of in 15 or 20 minutes at the outside. Again, this personal customer, in many cases, wants his goods right away, when the probabilities are that we have written orders with cash inclosed that have been waiting patiently their time. Now, friends, as far as convenient will you not make your orders by letter? and as far as the inspecting of goods is concerned, you are most of you familiar with the wares we handle. If you do not know present prices of goods, write us with a list of what you want, and we will send you an estimate by return mail, with discounts, if any. You see, friends, it is a saving all around. It saves you car fare, it saves our time, and, consequently, is the greatest good to the greatest number by having more orders filled. Not only this, it avoids mistakes and controversies. It is fairness to friends at a distance; and will you not try to accommodate us? Of course, friends who live within 5 or 10 miles of us can save freight by driving out after the goods, and the foregoing does not apply to them.

The above was written by Ernest, to which I add, we do not, by any means, intend to be rough on our visitors. Sometimes we have genial friends who come to see us, who request permission to look around, without bothering anybody, and we are always glad to see such—the more the merrier; but if you come during the busy month just before swarming time, please don't feel hard if you have to wait on yourself a good deal. In regard to per-

sonal orders, I would suggest that the party making the order be afterward required to read the copy, and then say whether it is correct.

REDUCTION ON BEES AND QUEENS.

OWING to the very favorable season, we are pleased to state that we are now ready to fill orders for anything in the line of bees, queens, or full colonies, at June prices.

BUSINESS AT THIS DATE, MAY 15.

ALTHOUGH our trade has been as large as it ever was before, we are filling orders, with but few exceptions, quite promptly. Strikes have made us trouble in some lines of goods by the stoppage of freight. But few if any of our orders are more than a week old.

THE WESTERN PLOWMAN AND TOBACCO.

WE are pleased to note that the editor of the *Western Plowman*, of Moline, Ill., has fallen into line, and is going to send his paper free one year, to tobacco-users who give up the weed in every form for a period of one year. The name is to be printed, attached to the pledge given in the first number of the *Plowman*; and if the signer "goes back" on his pledge he is to pay 50 cts. for the paper—that is all. The bright feature of this is, that the man who promises to quit, publishes said promise in black and white; and who would go back on his signed contract, published in a paper, for a paltry 50 cts.?

THE BEE-KEEPER'S LAWN-MOWER.

THOSE lawn-mowers have exceeded our expectations. Around home the lawn had been neglected, and the grass had grown to a height of six and seven inches, and was of a heavy growth. But one of those little mowers cut it all down. In a few places the grass was eight and nine inches high, but the mower leveled down even this; however, when grass reaches this height it requires considerable strength to run the machine, and to make the job complete the ground must be gone over again. Our boys have experimented with several different mowers, but never found one that, for ease of running and good work, would anywhere near compare with this. For prices see advertising columns of this issue.

ORDERS FOR ODD-SIZED GOODS, CONSIDERED ONCE MORE.

WE always try hard to do "all we agree to do," and the regular-sized goods in our price list we at least indirectly, if not directly, agree to keep on hand in readiness for shipment. Now with the crowd on our factory, it is, without question, our duty to fill orders for regular goods first; and orders for odd-sized stuff, that we do not advertise, and do not agree to furnish, must come afterward. This is but justice in several ways. We can generally fill half a dozen orders for regular goods, where the machinery is all fixed, where we could fill only one or two that required delays for a new arrangement, to make something special to order. In making your orders, please keep this in mind: The things we advertise can usually go at once, or pretty nearly so; but things that have to be made specially for you must await their turn.

REASONS FOR BEING THANKFUL.

THE weather thus far has been most beautiful. At the present writing, May 12, we have had no frost to do any damage, since the early part of April. During April a spell of beautiful warm dry weather, just exactly as farmers wanted it to get

ahead with their work, continued so long that some, who might be in a little hurry to complain, just began to talk about the drought. Since then, beautiful summer showers have blessed us just about as fast as they were wanted; and any one who works outdoors (or indoors either, for that matter) and has not felt a spark of gratitude welling up from his heart, must be, it seems to me, a little hard to please.

KIND WORDS FROM OUR CUSTOMERS.

THE PRINTING AND BINDING OF THE A B C.

I must compliment you on the present edition of your *A B C of Bee Culture*. The fine grade of ink used, together with the quality of the paper, "bring out" the engravings and type with a wonderful cleanness and distinctness. It is a sample of work that would be a credit to any printing and book-binding establishment. J. B. WHITLOCK.
Eufaula, Ala., May 4, 1886.

NONE MORE WELCOME THAN GLEANINGS.

I wish to say something in favor of *GLEANINGS*. I take several journals of another kind, but none are more welcome to my table than bright and happy *GLEANINGS*, with "What to Do and How to Be Happy while Doing It." I was very tired when I took your issue for Jan. 15th, but after reading it half an hour I felt like a new man. Wishing you unbounded success I remain resp'y yours,
Brockway, Mich. W. H. GOWAN, M. D.

GLEANINGS "A LAMP TO THE FEET OF THE YOUNG."

My children inquire of me every day, "When are you going to get *GLEANINGS*? We can't do without it; do get it again." In fact, I have felt as if I were getting a little lonesome too, for we all have a desire to see it first among our other papers. It is a safe journal for a family to read, and a lamp to the feet of young and old. Would that the children would read *GLEANINGS*, and practice its teachings, in place of reading novels and attending dances and such like. O. P. WRIGHT.
Millerstown, Perry Co., Pa., Apr. 26, 1886.

GOOD GOODS AT A LOW PRICE.

My goods, which were shipped March 5, have arrived. They were delayed a long time on account of the great strike. One of the ends of the barrel was out except one small piece. Nothing had lost out. The railroad men must have been very careful not to lose anything out of the barrel. Those culled sections are much better than I expected. They are good enough for me. Every thing you sent is cheap. Those ten-cent screw-drivers are the cheapest goods I ever saw. You must buy cheap, or you could not sell so cheap; but how can manufacturers make a living at such low figures?
G. W. BEARD.

Milano, Milam Co., Tex., April 29, 1886.

TROUBLE TEACHES US HOW TO SYMPATHIZE WITH EACH OTHER.

I received my second lot of goods all right. I think those ½-lb. tumblers are "boss." Every article was found just as ordered. I am well pleased with every thing. I made quite a lot of hives and sections this spring for myself and neighbors. Bees are doing very well at present. They commenced on fruit-blossom this morning. Friend R., will you send me a lot of sample copies of *GLEANINGS*, especially of Mar. 15? You ask why that date. This is a Christianlike neighborhood, and a great many of them are keeping bees, and I thought to present some of them with a copy, and perhaps by the operation I might receive some subscriptions for the same. The one particular feature about that issue is in *Our Homes*. I have lost considerable stock this winter, and from causes for which I can not account, nor can any one else whom I have seen. I have worried over it considerably; but when I read *Our Homes*, I took to quite a different notion, and have quit worrying and troubling myself about things which I can not help. I hear some of my neighbors are losing in the same way, and perhaps those numbers will help them. It has helped me wonderfully. S. B. MILLER.
Amish, Iowa, Apr. 23, 1886.

WHAT OUR OLD FRIEND W. H. SHIRLEY THINKS OF US.

It is a keen pleasure to deal with you, and I wish there were a great many more like you.
Millgrove, Mich., Mar. 30. W. H. SHIRLEY.

PERFECT SATISFACTION.

The goods I ordered of you have given perfect satisfaction, and I have concluded that when we need any thing in your line to send to you for it.
Pattonville, Texas. J. M. CROCKETT.

I believe that all bee-men claim "kin," and, besides, I have gotten it in my head that you are a real good Methodist, and that we are brothers.
P. H. MARBURY.

Hearn, Clark Co., Ark., April 9, 1886.

I am well pleased with GLEANINGS, especially the Home Papers, and its high moral tone. As for the mix, "variety is the spice of life."

DANIEL E. ROBBINS.

Payson, Adams Co., Ill., Dec. 28, 1885.

I received the goods all right, and was very much pleased with them. I think that the A B C book is just splendid, as it is gotten up in such nice style. Your \$7.00 saw-mandrel is a beauty. The freight on goods was reasonable.
H. H. FISH.

Spencer, Iowa.

PUTTING THINGS UP SO NICELY.

The goods have come to hand all right. You make me feel glad when I see your efforts to please by putting things up so nicely, and discounting whenever your margin will bear it, even in the smallest things.
GEORGE ROON.

Thorpe's Spring, Hood Co., Tex., May 2, 1886.

THE ADVANTAGE OF THE HUMBUG AND SWINDLE DEPARTMENT.

The maple syrup was received a few days ago. We are well pleased with it. Your exposure of the blueberry-plant fraud has saved me considerable money, as I had sent for a price list, and had intended to send for some plants.
S. M. MOHLER.

Covington, Miami Co., O., Apr. 13, 1886.

THAT IMPORTED QUEEN.

The imported queen is here and in good condition; out of the 1/2 lb. of bees that accompanied her, only about 25 were dead, although they were three days on the way. In less than two hours after they were hived, the queen commenced to lay. Thanks for your careful packing.
THOS. & BENJ. YOUNG.

LaSalle, Ill., Apr. 26, 1886.

SEEK YE FIRST THE KINGDOM OF GOD, ETC.

The knowledge you impart in bee culture is good, but it is secondary to that other good quality you display in your writing in bee culture, in preaching the gospel. I ascribe your exquisite flavor of apples and honey not altogether to fresh air, but in a great measure to the truth of the Spirit. See Gal. 5:22. May the God of peace sanctify you wholly, and preserve you until the coming of Christ. With Christ in the heart the world is already a paradise.
East Camp, N. Y., Dec. 19, 1885. PHILIP WECK.

THAT A B C BOOK.

I am just in receipt of your beautiful book, and can only say that my astonishment surpasses any thing I could express, and I can only say that you not only have my warmest thanks, but you may rest assured that, if I can do any thing in the matter at all I shall look to you as the source from which I shall look for all my gettings. I shall read it up carefully, and report.
H. W. NEAL.

Wellsville, York Co., Pa.

HOW A BEGINNER SUCCEEDS AS PER INSTRUCTIONS IN THE A B C OF BEE CULTURE.

I have been a student of yours through your A B C book. I purchased one of Rev. Edwin Dudder, and, at the same time, one stand of Italian bees, two years ago this month. I have transferred, divided, and united weak swarms, hatched queens

in the lamp-nursery, and introduced them to queenless swarms successfully. Your book has enabled me to do this work, and it has been a great pleasure to me, as well as a source of profit. I wish to express my thanks for the pains you have taken to make bee culture a success for those having no experience. I use one style of hive—Langstroth improved, making them myself, and buying the broad and narrow frames, section boxes, and foundation, etc., of King & Aspinwall. As I look over your book and study it I have a growing desire to speak to you through the pen.
C. M. HOWELL.

Andover, N. J., March 9, 1885.

ITALIAN AND SYRIAN QUEENS,

Before June 15, tested, \$3.00 each; untested, \$1.00 each. Later, tested, \$2.00 each; untested, single queen, \$1.00; six for \$5.00; twelve or more, 75 cts. each. Untested queens warranted purely mated.
6ttdb I. R. GOOD, Nappanee, Elkhart Co., Ind.

SECTIONS, \$4.25 PER M.

7-12db S. Y. ORR, Morning Sun, Iowa.

THE CANADIAN BEE JOURNAL.

WEEKLY, \$1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Boston, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages.
9tfb



SURE TO SEND

FOR MY NEW

PRICE LIST FOR 1886,

Before purchasing your Bee-Supplies. Cash paid for Beeswax. 7ttdb

A. B. HOWE, Council Bluffs, Ia.

THE

Apicultural Establishment

OF

F. J. DOKOUPIL,

In Vigaun, Upper Carniola, Austria, Europe,

Send QUEENS postpaid. Safe arrival and purity of breed guaranteed.

Price each in German Reichsmark.

	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.
Carniolan Queens, Native,	8	7	6	5	4	4	4
Italian Queens, Native,	9	9	8	7	7	6	6
Cyprian or Syrian Queens, Native,	20	20	20	20	18	18	18
Cyprian or Syrian Queens, bred in Carniola,	12	12	11	11	10	10	10

579dl

Italian Bees. I am compelled to reduce my stock of bees, and will sell full colonies and nuclei VERY CHEAP. Satisfaction guaranteed. E. A. GASTMAN, Decatur, Ill. 9tldb



ROYAL * GLUE.

Mends Everything.

This is the best cement we have ever tried. Almost any article mended with it will break anywhere else before the place mended. It holds honey labels on tin, etc. Ten cents per bottle; ten bottles, 90c; 100 bottles, \$8.00.

A. I. ROOT, Medina, O.

ITALIAN BEES IN IOWA.

60 c. to \$1.00 per lb. Queens, 30 c. to \$2.50. Order from new circular, sent free. 6tfdb

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

PURE ITALIAN QUEENS.

Single untested, \$1.00; 6 for \$4.00. Tested, single, \$1.50; 6 for \$7.50. Selected tested, single, \$2.50.

HENRY STECKLER, SR.,
P. O. Box 99, New Iberia, La.

UNTESTED Italian queens, ready May 25, \$1.00 each; 6 for \$5.00. Tested, \$2.00; after June 20, \$1.50. Bees, per lb., \$1.50; after June 15, \$1.25; full colonies in one-story S. hive, \$8.00. 10d

F. S. McLELLAND, Box 379, New Brighton, Beaver Co., Pa.

JOB LOT OF WIRE CLOTH

AT GREATLY REDUCED PRICES.

SECOND QUALITY WIRE CLOTH AT 1½ CTS. PER SQUARE FT.

SOME OF THE USES TO WHICH THIS WIRE CLOTH CAN BE APPLIED.

This wire cloth is second quality. It will answer nicely for covering doors and windows, to keep out flies; for covering bee-hives and cages for shipping bees; making sieves for sifting seeds, etc.

Number of Square Feet contained in each Roll Respectively.

22 rolls of 217, 37 of 216, 1 of 185, 2 of 215, 1 of 210 s. f.
5 rolls of 233, and 2 of 234, s. f.
3 rolls of 281 s. f.
26 rolls of 316, 2 of 317, 1 each of 632, and 285 s. f.
1 roll of 245 s. f.
1 roll of 366, 1 of 348 s. f.
2 rolls of 400 s. f.

FIRST QUALITY WIRE CLOTH AT 1¼ CTS. PER SQUARE FT.

The following is first quality, and is worth 1¼ cts. per square foot. It can be used for any purpose for which wire cloth is ordinarily used; and even at 1¼ cts. per sq. ft. it is far below the prices usually charged at hardware and furnishing stores, as you will ascertain by making inquiry. We were able to secure this very low price by buying a quantity of over one thousand dollars' worth.

22 1 roll 143 s. f.
24 42 rolls of 200 sq. ft. each.
26 56 rolls of 216 sq. ft. each; 1 each of 193, 195, 201, 200, 227, 204 sq. ft.
28 72 rolls of 233, 11 of 224, 8 of 222, sq. ft.; 1 each of 257, 219, sq. ft.
30 36 rolls of 250 sq. ft.; 1 each of 235, 275, 240, 225, 237 square ft.
32 13 of 266, 7 of 256, 2 of 253 sq. ft.; 1 each of 250, 275 sq. ft.
34 30 rolls of 283 sq. ft. each.
36 22 rolls of 300 sq. ft. each; 1 each of 288, 279, and 285 square ft.
38 1 roll each of 300 and 316 sq. ft.
40 1 roll of 233 square feet.
42 1 roll of 350 square feet.
46 1 roll of 192 square feet.

A. I. ROOT, Medina, Ohio.

JOB LOT OF POULTRY-NETTING,

At 1 ct. per sq. foot; 5 per cent off for two or more pieces; 10 per cent off for 10 or more pieces; 1¼ cts. per sq. ft. when we have to cut it. Besides this job lot we keep in stock the regular 4-foot poultry-netting, in rolls of 150 lineal feet at same price as above. These figures give the number of sq. feet for each roll; and by dividing by the number of feet wide you can determine the length of each piece.

60 1 piece each of 170 sq. ft.
72 1 66, 72, 72, 150, and 186 sq. ft.
A. I. ROOT, MEDINA, OHIO.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ads. intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.—To exchange pure bred Langshans fowls or eggs for apiarian supplies. 10d
WM. NICOL, Gurnee, Lake Co., Ill.

WANTED.—To exchange a 14-inch saw mandrel for comb fdn. or other supplies. 10d
BRUCE HOBBS, Danville, Knox Co., Ohio.

WANTED.—To exchange Italian bees, brood, and queens, for fdn., beeswax, type-writer, or any thing having a standard market value. 6tfdb
THOMAS HORN, Box 691, Sherburne, Chen. Co., N. Y.

WANTED.—To sell or exchange, farm, 180 acres, good buildings, good sandy soil; also latest improved Steam Thrashing-machine. Either or both at a bargain. Address J. A. OSBUN & SON, 7tfdb
Spring Bluff, Adams Co., Wis.

WANTED.—To sell cheap for cash, or will exchange for bees, Root's chaff hives, the D. A. Jones chaff hives, made up or in the flat, wide frames, brood-frames, dovetailed sections, cases, etc. J. M. KINZIE, 10tfdb
Rochester, Oakland Co., Mich.

WANTED.—To sell or exchange a farm, 160 acres; good buildings, good soil, good title. All under fence. For sale at a fair price. Address 10d
W. B. BROWN, Spirit Lake, Dickinson Co., Ia.

WANTED.—To exchange Italian bees for a bicycle, from fifty to fifty-six inch. 10d
W. E. DARROW, Box 106, O'Fallon, St. Clair Co., Ill.

WANTED.—To sell or exchange pure Italian queens for beeswax at 28c per lb. Queens, select, \$3.00; warranted, \$1.50. Ship wax by freight to Barrytown, N. Y. CORNELIUS BROS., 7 12 db
LaFayetteville, Dutchess Co., N. Y.

WANTED.—To sell or exchange. 1000 Simplicity frames of comb, \$2.25 for 13, packed in a Simplicity body. ARTHUR TODD, 9tfdb
1910 Germantown Avenue, Philadelphia, Pa.

EGGS.—From choice stock, for hatching. Safe arrival guaranteed. Wyandottes, \$2.50 for 13; \$4.00 for 26. Houdans, \$1.50 for 13; \$2.00 for 26. Breeding birds and chicks for sale; or I will exchange for bee-supplies I can use. J. EVANS, 9tfdb
Box 99, Schaghticoke, N. Y.

WANTED.—Immediately. 1000 lbs. good beeswax, in exchange for foundation. Wax worked for a share by the pound. Work guaranteed No. 1. Samples free. See ad. in another column. 9-10d
O. H. TOWNSEND, Alamo, Kal. Co., Mich.

WANTED.—To exchange for bees, side-hill plow, cost \$16.00; Wiard plow harrow, feed-cutter, circular saw. ARTHUR TODD, 9tfdb
1910 Germantown Avenue, Philadelphia, Pa.

WANTED.—To exchange or sell. Eggs for hatching, from 3 varieties of high-class fowls, selected stock, costing from \$12 to \$20 per pair. Brown Leghorns, Silver-Spangled Hamburgs, and Plymouth Rocks. Eggs, per setting of 13, \$2.00. Fowls for sale. Address A. H. DUFF, 8tfdb
Creighton, Guernsey Co., Ohio.

WANTED.—Persons in need of stationery to send 28c, 35c, or 40c for 100 envelopes or note-heads, neatly printed to order. Address 10
HERBERT BRICKER, Slate Lick, Pa.

WANTED immediately, 20 untested queens in exchange for beautiful white basswood one-piece sections, at \$4.25 per 1000. A. D. D. WOOD, 10tfdb
Rives Junction, Jackson Co., Mich.

WANTED.—To sell, after June 1st, 50 3-frame L. size nucleus colonies of hybrid bees, with queens, for \$3.50 each, delivered at Plattsmouth, Neb., or I will exchange for young stock, cattle or horses, or apiarian supplies. 10d
J. M. YOUNG, Rock Bluff, Cass Co., Neb.

WANTED.—To exchange 20,000 strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale, 75 cts. per 100; \$4.00 per 1000, for bees, foundation, or improved poultry. 10tfdb
W. J. HESSER, Plattsmouth, Neb.

WANTED.—Ginseng root.—Will pay 75 cents per lb. for the dried root. One ounce to one lb. may be sent by mail to my address. Larger packages may be sent by express to Ransom, Pa., via Pitts- 10-11d
ton, Pa. Address A. P. SHARPS, Exeter, Luzerne Co., Pa.

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.

4-3db

ITALIAN QUEENS AND NUCLEI.

Prices in February and March GLEANINGS.
7-10db ANNA M. BROOKS, Sorrento, Fla.

HORN PAYS EXPRESS CHARGES
SEE ADVERTISEMENT.



The **BUYER'S GUIDE** is issued March and Sept., each year. 280 pages, 8½ x 11½ inches, with over 3,500 illustrations—a whole Picture Gallery. **GIVES Wholesale Prices**

direct to consumers on all goods for personal or family use. Tells how to order, and gives exact cost of everything you use, eat, drink, wear, or have fun with. These **INVALUABLE BOOKS** contain information gleaned from the markets of the world. We will mail a copy **FREE** to any address upon receipt of 10 cts. to defray expense of mailing. Let us hear from you. Respectfully,

MONTGOMERY WARD & CO.
227 & 229 Wabash Avenue, Chicago, Ill.

7-12db

BEES IN IOWA. SEE FOSTER'S ADVERTISEMENT.

Y&.. WYANDOTTE FOWLS, ITALIAN BEES, QUEENS, and SUPPLIES. **BB**
Send for Price List.
W. H. OSBORNE, CHARDON, OHIO.
5-11db

DO YOU EAT CANDY?

Send \$1.25, and I will express 5 lbs. of Todd's Honey Candies, same as made a sensation at last Pennsylvania State Fair. Remember, every pound sold helps the honey-trade. Special rates for quantities for fairs. Dadtant Foundation always in stock at market prices. Bees, Queens, Hives, Smokers. Vol. I of Frank Cheshire's new book mailed free, \$2.50.
914db ARTHUR TODD, 1910 Germantown Ave., Philadelphia, Pa.

FOR SALE.—40 colonies of my improved strain of pure Italian bees in two-story chaff hives, @ \$7.00; in single-walled hives, 1½ story @ \$6.50; 50 two-story chaff hives, including frames and crates, @ \$1.50; 50 single-walled hives, frames and crates, @ .90. Hives have tin roof. 1 honey-ext. for L. frame, \$3.00. A wax-ext., \$1.00. Must be sold immediately. 7fdb

GEO. F. WILLIAMS, NEW PHILADELPHIA, O.

VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.
7fdb JNO. VANDERVORT, Laceyville, Pa.

GOOD NEWS FOR DIXIE!

SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at **ROOT'S PRICES.**

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA.

3-24db

FOR SALE.—100 colonies of Italian bees, and 200 tested and untested queens.
9-12db E. BURKE, Vincennes, Ind.

RUBBER CEMENT FOR MENDING RUBBER BOOTS, RUBBER SHOES, and all kinds of rubber goods. An article worth its weight in gold, for the saving of health, annoyance, and trouble. Printed directions for use accompany each bottle. Ten cents per bottle; ten bottles, 85c; 100, \$8.00. Not mailable.

A. I. ROOT, MEDINA, OHIO.

ITALIAN QUEENS IN TEXAS.

Reared from Root's best imported. Untested queen, \$1.00. Selected, and tested, \$2.00, \$2.50. Sent by mail. Safe arrival guaranteed. AD. MEYER, 9ftd Sweethome, Lavaca Co., Texas.

50 STRONG COLONIES BEES

FOR SALE CHEAP.

F. L. WRIGHT, 9-10d Plainfield, Mich.

SEND FOR FREE FOUNDATION
TO C. W. PHELPS & CO., TIOGA CENTER, N. Y.

Introducing Queens.

Henry Alley has given, in the May number of the **AMERICAN APICULTURIST**, several new methods for introducing both fertile and unfertile queens. Sample copies free. Address

AMERICAN APICULTURIST,

9ftdb

Wenham, Mass.

BOOK FREE. Our catalogue for 1886 contains 45 pages; 31 are devoted to bee-keeping. It treats the different operations clearly and practically. It is just what the beginner needs. Tells how to use the various implements, and embraces the following subjects: Who should Keep Bees? Location of Apiary; Handling Bees; Hives; Implements; Robbing; Italianizing; Swarming; Surplus Honey; Feeding; Diseases and Enemies of Bees; Wintering Bees; Marketing Honey; and a complete list of supplies. This book will be sent free to any address by **WATTS BROS.,**
9ftdb Murray, Clearfield Co., Pa.

NOTICE THE LOW PRICES ON

Bees, Brood, Queens, Plants, Etc.,

IN MY NEW CIRCULAR. PLEASE WRITE FOR ONE.

C. WECKESSER.

5-10db

Marshallville, Wayne Co., Ohio.

SEND FOR FREE FOUNDATION
TO C. W. PHELPS & CO., TIOGA CENTRE, N. Y.

125 STOCKS OF BEES FOR SALE.

Mostly Italians. These bees must be sold, and will be sold cheap. All in Quinby frames. Sold with or without hives. Send for prices of Italians, hybrids, and blacks. Address

7-10db

WM. E. CLARK,
Oriskany, Oneida Co., N. Y.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretschmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O.; J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with 150 Complimentary and unsolicited testimonials, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,
3btfdb Hamilton, Hancock Co., Illinois.

BEES IN MISSOURI, J. C. STEWART,
HOPKINS, MO.

SECTIONS,

\$3.50 per M. Dovetailed, all-in-one-piece. Send 2-cent stamp for sample.
9-12db E. S. MILLER,
Dryden, Mich.

In Order to Introduce my Golden Italians

And place them within reach of all, I will send untested queens for 90 cts. each; 1/2 doz., \$5.00; 1 doz., \$9.50. Tested queens, \$1.75 each. My queens are reared from an imported mother, and in full colonies; 2-frame nuclei, with untested queen, \$2.50; 3-frame nuclei, with untested queen, \$3.00 (on Simplicity wired frames). Full colonies, Italians, in 8-frame Simplicity hive, \$5.50. Full col. hybrids, \$4.00. Ref. A. I. Root. Address A. B. JOHNSON,
9tfdb Clarkton, Bladen Co., N. C.

HUMBUG! HUMBUG!

Such men as Muth, Mason, Duvall, Blood, etc., say not. If you are skeptical, try one any way. I guarantee to please you. The Ideal Glass-front veil, only 75c by mail; 16-page circular free.

JOHN C. CAPEHART, St. Albans, W. Va.

ITALIAN BEES AND QUEENS,

From imported queen bought of A. I. Root. Will furnish by June 1. Bees, per pound, 90c., in wire-cloth cages. Untested queens, 90 cents; tested, \$2.00. Two-frame nucleus, consisting of one untested queen, two frames containing brood, and all adhering bees, \$2.00. Safe arrival guaranteed.
10d Mrs. A. F. Proper, Portland, Jay Co., Ind.

PURE ITALIAN QUEENS

Bred from select imported and home-bred mothers, of the best strains. No black bees near. Untested queens, in June, \$1.00 each; 6 for \$5.00. Tested queens, \$2.00 each. For nuclei, etc., send for price list.
10tfdb ADRIAN, LENAWEE CO., MICH.

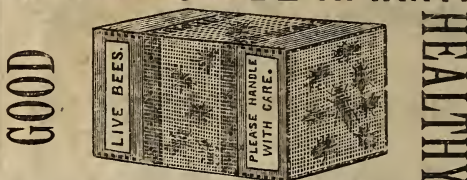
I WILL SHIP 4-FRAME NUCLEI, in Simplicity-hive body, well stocked with bees and brood, and guarantee safe arrival. Pure Italian, \$4.00; hybrids, \$3.50. Ready to ship by next train.
10d E. M. MOYER, Hill Church, Berks Co., Pa.

REDUCTION IN PRICES.

We hereby notify our customers that there is a reduction in foundation from the prices quoted in our March retail price list. All parties interested will please mail us a card for new prices.

10d CHAS. DADANT & SON,
Hamilton, Hancock Co., Ill.

TELEGRAM FROM NORTH-SHADE APIARY.



PURE ITALIAN BEES,

AT THE FOLLOWING REDUCED PRICES:

One pound in package, as above \$1.25
Five pounds in one package 6.00
Untested queens, \$1.00 each; \$10.00 per doz. Tested queen, \$2.00; 5 for \$9.00. Select tested to breed from, \$3.00. Orders filled in rotation. All ready for orders, with 140 colonies to draw from.

STEAM FOUNDATION WORKS.

Comb foundation. Wax worked by the pound. Samples and prices free. O. H. TOWNSEND,
10tfdb Alamo, Kalamazoo Co., Mich.

1880. 1886.

Headquarters in the North.

Steam factory, fully equipped, running exclusively on BEE-KEEPERS' SUPPLIES. White-polar and basswood one-piece and dovetailed sections. Vandervort thin foundation. Send for free samples and illustrated price list.
10-15db A. D. D. WOOD,
Rives Junction, Jackson Co., Mich.

A YEAR AMONG THE BEES.

A New Bee-Book of 114 Pages.

Price 75 cents. Sent postpaid by the Author,
10tfdb DR. C. C. MILLER, Marengo, Ills.

QUEENS AND BEES.

Untested, in May, \$1.15 each; \$12.00 per doz.
" June, \$1.00 " \$10.00 " "
Tested, \$2.50 in May; \$2.00 in June and after. Dealers, send for special discounts on dozen lots or more. Safe arrival guaranteed.
W. J. ELLISON,
10-12d Stateburg, Sumter Co., S. C.

APIARY FOR SALE.

90 COLONIES, in splendid condition; 20 acres land, large new frame house, 70 new hives, 12,000 4 1/4 x 4 1/4 sections, tools, etc. One of the best honey-producing localities in the State of Iowa. Immediate possession.
10tfdb C. A. SAYRE,
Sargent, Floyd Co., Iowa.

QUEENS, 1886. UNTESTED,

From select imported mother. After May 15, \$1.00. Wax worked into fdn. for a share, or by the pound. Satisfaction guaranteed. THOS. & BENJ. YOUNG,
10-15d LA SALLE, LA SALLE CO., ILL.

RUBBER-PRINTING-STAMPS

For bee-men; stamps of all kinds; send for catalogue and sample cuts printed on sections.
10d G. W. BERCAW, Berwick, Ohio.